Benchmarking the Murky Middle

Prepared for the American Association of State Colleges and Universities
EAB and the Student Success Collaborative

Based in Washington, D.C., EAB provides best practice research, consulting, and technologies to senior leaders in academic affairs, business affairs and student affairs at more than 1,200 colleges and universities across North America. Leveraging this economy of intellect, EAB strives to surface innovative ideas, analytical insights and technological solutions that will help our member institutions address their most pressing challenges.

The Student Success Collaborative (SSC) is a membership of more than 475 colleges and universities across the country working together to improve student outcomes and experiences. Members of the Collaborative use a student success management system that helps faculty, staff, advisors and administrators to support students from enrollment to graduation and beyond. Members also benefit from ongoing consulting support and access to best practice research.

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The Murky Middle Project: Student Data Methodology

Our research was conducted using the SSC National Data Set, which contains historical student records from 160+ public and private U.S. higher education institutions that enroll between 500 and 65,000 undergraduates across most four-year Carnegie Classifications.

The full Murky Middle Project data set included approximately 6,705,000 unique student records. All students in the full data set meet the following criteria:

- **Full-time status** – Full-time status was defined as any student attempting 12 or more credits in his or her first enrolled term.

- **First-time enrollees** – Transfer students were excluded. Transfer status was determined by student admission codes, if available, or by using term-level data.

Analyses on these students investigated the differences between graduate and dropout cohorts in terms of grade distribution and timing of outcome. In this study, all departing students are labeled “dropouts”; however, many students transfer directly or reenroll at another institution years later.

- **“Sophomore+ dropout”** refers specifically to students who return to their native college for a second year but do not ultimately graduate from that school.

- **“Murky Middle”** refers to students who finish their first year with a GPA between 2.0 and 3.0. Sophomore+ dropouts tend to be overrepresented in this range.

Special Focus: AASCU Members

The American Association of State Colleges and Universities (AASCU) works with leaders at public institutions across the country. AASCU members are predominantly regionally oriented, non-flagship, and have a focus on access and opportunity.

At AASCU’s request, EAB analyzed student success data from 86 AASCU institutions that are also members of EAB’s Student Success Collaborative, with the aim of helping leaders better understand where to focus efforts for reducing attrition in the sophomore year and later.
State allocations per student have been in decline across most of the country since the onset of the Great Recession.

Most state institutions experienced deep funding cuts during and immediately following the Great Recession. As with prior recessions, funding in most states has failed to return to prerecession levels, even now that we are several years out from the crisis. Increasingly, this feels like a “new normal.”

The decline in state support means that public institutions have become increasingly tuition dependent. With increased tuition dependence comes an increased dependence on growing enrollment as a primary means of bringing in additional revenues and funding new projects.

This shift increasingly exposes public institutions to concerning demographic trends in the population of high school graduates who traditionally serve as the cornerstone of first-year enrollments for many schools. These trends have turned downward for the first time in decades.

Regional Declines in High School Graduates Threatening Enrollments

Stagnating high school enrollments will intensify current funding challenges.

After decades of consistent growth, the number of high school graduates has begun to stagnate or even decline in many areas of the country. This decline is best tracked from 2013 onward, as that year represented an all-time high in the production of high school graduates.

These student trends are highly variable by geography. New England and the Midwest are projected to be the hardest hit. High school graduation in former growth areas, such as Florida and California, will slow. Schools in growth areas such as Texas and Colorado may face increased recruiting competition from their coastal peers.

Many institutions have already begun to feel this crunch, while others are preparing for it. Many are increasing their investment in marketing in an effort to win the recruiting arms race. Others are looking to other populations, such as international students and adult learners.

EAB research indicates that a third strategy can provide an additional source of much needed enrollment: retaining current students.

Figure 2. Change in High School Graduates, 2013-2023
Size of Circle Represents Total Number of Graduates

Rethinking Student Success as an Enrollment and Revenue Driver

Small increases in persistence can have a seven-figure impact on revenues.

To better understand the financial opportunity associated with improved student persistence, EAB developed a sophisticated revenue projection model incorporating almost 30 variables based on nationally observed patterns of persistence and attrition at member institutions.

One such projection can be found in Figure 3. This model tracks the incremental annual revenue from an annual one percent increase in overall persistence (all class years) for three straight years at a midsize (10,000 undergraduates) public institution. “Net revenue” is defined as net tuition plus an approximation of state funding allocation per student. This model shows that even this modest increase in persistence generates millions of dollars in additional annual revenues.

Faced with this revenue opportunity, many schools are now asking where they can improve their student success rates. For most, this involves looking beyond the traditional focus on first-year retention.

Figure 3. Financial Impact of a Retention Increase
Projected Net Revenue Above Baseline

- 10,000-undergraduate public institution
- $12,000 net revenue per student (net tuition + state funds)

<table>
<thead>
<tr>
<th>Year</th>
<th>Net Revenue</th>
</tr>
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<tbody>
<tr>
<td>Fall 2018</td>
<td>$0.7 M</td>
</tr>
<tr>
<td>Fall 2019</td>
<td>$2.0 M</td>
</tr>
<tr>
<td>Fall 2020</td>
<td>$3.8 M</td>
</tr>
<tr>
<td>Fall 2021</td>
<td>$5.1 M</td>
</tr>
<tr>
<td>Fall 2022</td>
<td>$5.9 M</td>
</tr>
<tr>
<td>Fall 2023</td>
<td>$6.2 M</td>
</tr>
<tr>
<td>Fall 2024</td>
<td>$6.3 M</td>
</tr>
<tr>
<td>Fall 2025</td>
<td>$6.4 M</td>
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</table>

Source: EAB interviews and analysis.
Are We Focusing Efforts in the Wrong Place?

The majority of student attrition actually occurs in the second year or later.

Conventional wisdom and years of strategic tradition suggest that student success efforts should be focused on supporting first-year students as they make the difficult transition from high school.

While the first year undoubtedly represents a challenge for many students, our data show that a school focusing its efforts solely on retaining students through the first year may actually be overlooking a large part of the problem. The first year is undeniably the biggest single year for loss, but nearly three-fifths of all departures actually occur in the combined subsequent years.

We are not recommending that schools abandon their efforts to retain first-year students. Rather, we believe the data prompt a reevaluation of strategy and an increase in investment in retention efforts targeted at reducing attrition in the second year and beyond.

Such investments are critical for improving overall persistence rates and for ensuring that any retention gains made in the first year carry through to graduation.
Sophomore+ students with GPAs between 2.0 and 3.0 represent a huge untapped opportunity for most AASCU institutions.

With a primary focus on high-risk and first-year students, most colleges do comparatively little to address student attrition in the second year or later, a population we call “sophomore+ dropouts.”

Early academic performance is a reliable indicator of ultimate graduation outcome. The vast majority of sophomore+ dropouts (shown in light blue in Figure 5) were in good academic standing, with a GPA over 2.0, when they returned for a second year.

At AASCU members, the largest cluster of sophomore+ dropouts finishes the first year with a GPA between a 2.0 and 3.0. Of all the students in this range, the vast majority (84 percent) returned for a second year; yet just over half ultimately graduated. This suggests targeted support could have a major effect on graduation rates among this population.

Because of their inherent ambiguity in graduation outcome, we’ve given the population of sophomore+ students with mid-range GPAs a special name: the “Murky Middle.”

Figure 5. Topographical Map of AASCU Student Outcomes

3.0 Million Student Records (FT/FT Only, Part-time and Transfer Excluded) at 86 AASCU Institutions
**A Close Look at the AASCU Murky Middle**

**AASCU members may have a bigger opportunity than most.**

Sophomore+ attrition manifests differently across institution types.

This analysis isolates sophomore+ dropouts for AASCU publics, other publics in our data set, and privates. The absolute analysis looks at sophomore+ attrition as a share of all students. The normalized analysis looks at sophomore+ attrition as a share of all dropouts, to control for differences in graduation rates between segments. Taller curves represent a bigger opportunity within that GPA range.

In absolute terms, AASCU members have the largest Murky Middle of the three market segments. Roughly 13 percent of FT/FT students at AASCU schools will end up dropping out in the second year or later, with a GPA between 2.0 and 3.0.

The normalized analysis shows that both AASCU and non-AASCU publics have very similar sophomore+ attrition curves. Both experience

30-31 percent of their total attrition in the Murky Middle, the largest share of attrition at these schools.

Conversely, sophomore+ attrition at private institutions is smaller and shifted to higher GPA ranges.
How Can We Spot Who Will Drop Out of the Murky Middle?

Academic performance matters more than preenrollment or demographic variables to understand who is at risk.

Interventionists looking to prevent Murky Middle dropout face two key challenges. First, the population is large. Second, it is difficult to sort likely dropouts from likely graduates on face value alone.

It is unrealistic for most schools to ask already over-capacity advising offices to regularly meet with every Murky Middle student to assess risk factors and likelihood of completion. Instead, offices need reliable analytic indicators to narrow their search efforts to the most likely risk cases.

To better understand these factors, we used an XGBoost statistical model to predict graduation based on 20+ variables. This model returns the predictive strength of each variable, scaled to the strength of the strongest variable.

Our most salient finding was that recent academic performance seemed to matter much more than demographic traits or preenrollment data to understand who is at the highest risk of dropping out of the Murky Middle.

Figure 7. Top 10 Factors Predicting Sophomore+ Attrition

<table>
<thead>
<tr>
<th>Relative Importance</th>
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<tbody>
<tr>
<td>Cumulative GPA</td>
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<tr>
<td>Terms Completed</td>
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<tr>
<td>High School GPA</td>
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<tr>
<td>GPA Trend</td>
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<tr>
<td>F in Prior Term</td>
</tr>
<tr>
<td>Current Attempted Credits</td>
</tr>
<tr>
<td>ACT Composite Score</td>
</tr>
<tr>
<td>F in Prior Two Terms</td>
</tr>
<tr>
<td>First Generation</td>
</tr>
<tr>
<td>SAT Composite Score</td>
</tr>
</tbody>
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College academic achievement variables in blue

Not in Top 10
- Gender
- Ethnicity
- Family Income
A Closer Look at Academic Performance and Graduation Risk

Universities should pay close attention to any sophomore+ student who receives an F grade in a recent term.

Following the factor analysis presented on the last page, we explored if academic performance data could be used to find Murky Middle students who were at an elevated risk of dropping out.

We found that a term-over-term drop in GPA was an excellent indicator that a Murky Middle student might be in need of attention. The more severe the drop, the lower the chances were that the student would make it to graduation.

A drop in GPA could be the result of a minor, across-the-board drop in grades, or it could be the result of failing classes at an increased rate. Our research found that the latter carried more significance. Any sophomore+ student who earns even one F should be considered at risk.

Furthermore, we found that even Fs earned several semesters earlier still carried an increased risk of dropout. Even seniors who hadn’t earned an F since their first year were slightly less likely to complete than their peers who had never earned an F.
Summary and Conclusions

Public colleges and universities currently face a historic funding challenge driven by a decrease in state appropriations combined with stagnating growth in high school graduates. In response, many schools are turning to student success as an enrollment strategy. Students who return for their sophomore year with a GPA between 2.0 and 3.0—the so-called “Murky Middle”—drop out at a surprisingly high rate, and thus represent a particularly attractive opportunity for enrollment growth at AASCU member institutions. As a first step, schools should target specialized advising and support to any Murky Middle student who has earned an F in a recent term. These students are most at risk for departure.

### Relevant Student Success Collaborative Resources

(Click the links to access the resources.)

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<tr>
<th>I. Student Success Mission and Goals</th>
<th>II. Organizational Design</th>
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<tbody>
<tr>
<td><img src="image1.png" alt="Book" /> <strong>The Emerging Discipline of Student Success Management</strong> White Paper</td>
<td><img src="image2.png" alt="Book" /> <strong>What Can Health Care Teach Us About Student Success?</strong> White Paper</td>
</tr>
<tr>
<td><img src="image3.png" alt="Chart" /> <strong>What Can Health Care Teach Us About Student Success?</strong> Infographic</td>
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<td><img src="image4.png" alt="Chart" /> <strong>The New Blueprint for Student Success</strong> Infographic</td>
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<tr>
<th>III. Advising and Student Support</th>
<th>IV. Data and Technological Capabilities</th>
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<td><img src="image5.png" alt="Chart" /> <strong>61 Campaign Ideas: Target Your Advising Effort Across the Year</strong> Infographic</td>
<td><img src="image6.png" alt="Chart" /> <strong>Mercy College Fulfills Its Access Mission by Meeting Students Where They Are</strong> Member Story</td>
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<td><img src="image7.png" alt="Chart" /> <strong>Six Roles for the Faculty in Student Success</strong> Infographic</td>
<td><img src="image8.png" alt="Chart" /> <strong>The 2018 SSC Case Study Compendium</strong> Member Story</td>
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For more information about the Murky Middle or EAB’s Student Success Collaborative, please visit [http://www.eab.com/studentsuccess](http://www.eab.com/studentsuccess)
Appendix

Additional Benchmarking for Subsegments Within AASCU
Small AASCU institutions have a larger Murky Middle than other publics of comparable size.

The next three pages subdivide the AASCU cohort by three institutional characteristics: size, selectivity and Pell representation. Each cohort is then compared to a benchmark of non-AASCU publics. Divergence from the benchmark could suggest reasonable opportunities for these AASCU schools to improve.

Enrollment size often correlates with resourcing strategy. Larger schools have a greater range of support services, but this support may be decentralized and heterogeneous.

Smaller schools may have fewer support services and rely more on faculty, but allow for greater central oversight.

Smaller AASCU schools (on the left of Figure A1) have a larger share of attrition represented by the Murky Middle than their non-AASCU counterparts (31 percent vs. 28 percent). This suggests a potential area of focus for these institutions.

Conversely, large AASCU institutions (on the right of Figure A1) show little difference in sophomore+ attrition when compared to the benchmark.
Selective AASCU institutions have a larger Murky Middle than other selective publics.

Selectivity in the admission process usually correlates with a stronger student academic profile and higher graduation success.

In the charts in Figure A2, we separated schools with admission rates above and below 70 percent. The sophomore+ patterns at schools with higher admission rates (on the right) show little difference between AASCU schools and their non-AASCU benchmarks.

A greater difference is seen among schools with higher selectivity (on the left). AASCU members tend to have a larger share of attrition in the Murky Middle (31 percent vs. 28 percent), while non-AASCU publics lose proportionately more students with higher GPAs.

Figure A2. Benchmarking Sophomore+ Attrition Within Subsegments
AASCU members with high Pell enrollments have a larger Murky Middle than comparable publics.

Researchers often use the percentage of students receiving federal Pell grants as a proxy for understanding the degree to which an institution serves a low-income population. Lower-income students historically have lower rates of academic success, which may manifest in sophomore+ attrition patterns.

We found little difference between AASCU schools with less than 40 percent Pell enrollment when compared to their public benchmarks (on the left of Figure A3). On the right of Figure A3, AASCU members with over 40 percent Pell enrollment have a larger Murky Middle than their benchmark (32 percent vs. 29 percent). This seems to be driven at least in part by differences in first-year attrition rather than differences across GPA bands. High-Pell benchmark publics have a larger proportion of their attrition in the first year, while high-Pell AASCU schools seem to lose more students later. This difference was not something that surfaced in the analyses of size and selectivity.
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Managing Director
Ed Venit

Legal Caveat

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