

This study is focused on correlates with post-secondary persistence. The analysis uses a combination of data from the Colorado Student Assessment Program (CSAP) provided by the Colorado Department of Education and information from the Colorado Department of Higher Education Student Unit Record Data System (SURDS). The CSAP data provides new information that has never before been analyzed in conjunction with the SURDS data. First, it provides Colorado's standards-based student assessment results. Second, the CSAP data contains new information on student characteristics: low-income status (as measured by free and reduced lunch eligibility), English proficiency, and disability.

The 10<sup>th</sup> grade mathematics CSAP scores are used in this analysis because of its strong predictive power relative to other subjects. The mathematics CSAP scaled scores ranged from 370 to 821, with a mean of 610. The SURDS data was used to estimate Admission Index scores which ranged from 47 to 146 with a mean of 109.

This study should not be considered exhaustive. The SURDS/CSAP data set created for this analysis is rich with additional details on student characteristics, preparation, program participation (such as ASCENT or concurrent enrollment), persistence, institutional practices, and diversity. There is a plethora of practical studies that can be performed on this data to inform current policy decisions.

This research focused on:

- A. Does the CSAP help predict whether a student will attend a 4-year or 2-year institution?
- B. How are institutions using the Admissions Index?
- C. How are CSAP scores, Admissions Index, and other factors related to persistence?

The analysis sample focuses on a sample of 42,000 first-time, in-state public higher education students between academic years 2008 and 2010, who were under 20. The sample was selected based on the availability of the CSAP and Index data, as well as the questions being addressed.

### **Does the CSAP predict whether a student will attend a 4-year or 2-year institution?**

The relationship between student assessment scores and four year enrollment is linear for a large part of the CSAP score distribution: a 1 scale score point increase on the math CSAP is equal to a .3 percentage point increase in the probability of attending a four-year institution. When controlling for CSAP scores, Hispanic students are less likely to attend four-year institutions while black, American Indian, and Asian students are more likely to attend four-year institutions.

### **How are Institutions using the Admissions Index?**

Students who were admitted with Index scores below minimum institutional requirements, *i.e.* "window admissions" were more likely to be Hispanic, black, or American Indian/Alaskan Native and male. In a reduced sample of students with both CSAP and Index scores those "window admissions" also averaged lower CSAP scores than non-window admissions.

There is large variation between institutions in the proportion of freshmen with an Index at or above the minimum: ranging from 71% to 97%. Some institutions had a relatively high proportion of students

without an Index (6% at Metropolitan State University), others had a high proportion with Index scores below their assigned minimum (Fort Lewis College at 21%), and another had high proportions of freshman with low Index or with no Index (Colorado Mesa University). Over time, application of the Index changed in some institutions, particularly Fort Lewis College, where the proportion of students with an Index at or above the minimum increased by 12 percentage points between 2008 and 2010.

### **Predictors of persistence**

Persistence is defined as completing 30 credit hours at any Colorado public higher education institution. Several patterns repeated throughout the analysis. The probability of persistence increases with higher CSAP or Academic Index scores. Hispanic and male persistence is lower at both two- and four-year institutions, even after controlling for capacity (measured by the CSAP or Index), remediation, low-income and English-language learner status. Blacks had statically lower persistence in four-year institutions but did not at two-year institutions.

The association with persistence of additional factors from the CSAP data was analyzed. Low-income status (*i.e.* free or reduced lunch eligibility) is associated with lower persistence rates. English language learner status is generally not associated with lower persistence. Disabilities are not associated with lower persistence at the four-year institutions. Some disabilities are associated with lower persistence at two-year institutions.

Taking remedial courses is associated with lower persistence, however passing those courses increased the probability of persistence. In many cases, passing a three-hour remedial course nullified the reduced persistence associated with having to take that course.

Persistence rates varied greatly between institution after controlling for student capacity and other factors. Within the two-year institutions the Community College of Denver, Community College of Aurora, Morgan Community College, Colorado Mountain College and Arapahoe Community College had statistically lower persistence rates. Lamar Community College and Otero Junior College had statically higher rates of persistence. Among four-year institutions Metropolitan State, Colorado State – Pueblo and Adams State had lower persistence rates. The Colorado School of Mines, University of Colorado Boulder, Colorado Mesa University, and Colorado State University all rank near the top in terms of persistence.

The CSAP and Index are correlated and comparable predictors of persistence, although the Index is more effective predictor of persistence. As has been shown by CDE the CSAP is highly correlated the ACT, which one of the inputs to the Admissions Index.<sup>1</sup> Given this, the CSAP may be an appropriate consideration when making admissions.

This analysis was conducted in response to a September 20, 2011 Request for Proposals Project #4: Colorado's Admissions Standards Impact Study. The analysis was conducted by R-Squared Research, LLC

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<sup>1</sup> Huchton, M. (March 4, 2011)). [Predicting Colorado ACT Performance Using CSAP Results](#). Colorado Department of Education

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