

Persistence Analysis of Engineering Undergraduate Students



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Abstract

A preliminary baseline analysis of the persistence of undergraduate students enrolled in the College of Engineering. Findings indicate that there is no gender gap in persistence for Engineering students but there is a racial gap.

Research Question

Of students enrolled in the College of Engineering, what are the factors that influence the probability of persisting?

Method

This was a multivariate analysis that used logistic regression to predict odds of persistence for Engineering students.

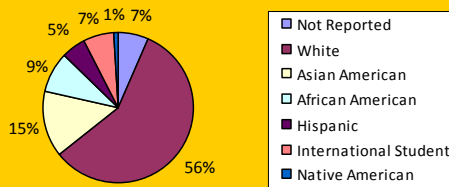
Data

The data utilized for this analysis were provided by the Office of Financial Aid and the Office of Budget and Planning for undergraduate students who enrolled in the summer or fall semester of 2001.

Sample

- 2001 Enrolled in College of Engineering Students (n=1050)
 - 70.5% Male
 - 70.1% Michigan Residents

Race/Ethnic Breakdown



Variables in model: Gender, Race/Ethnicity, Residency Status, Parental income, ACT scores, First year cumulative GPA, and the amount of offered aid received during the first year.

Outcome variable: Persister was defined as being registered for classes or graduated from the University during term being analyzed. Students who stopped out or dropped out are coded as non-persister.

Results*

Figure 1. Percent Persister by Race

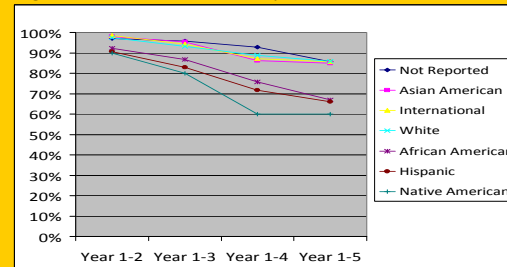


Figure 2. Percent Persister by ACT scores

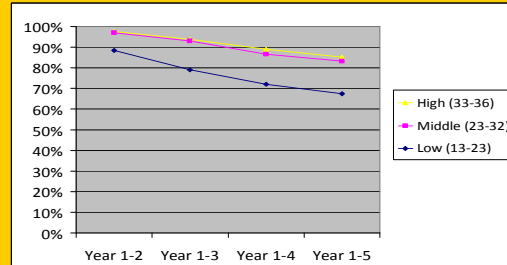
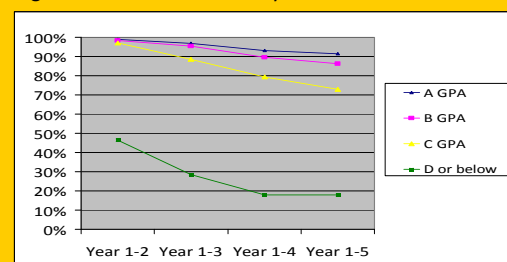


Figure 3. Percent Persister by First Year Cumulative GPA



Persister from Year 1 to Year 2

- Controlling for ACT scores explains the African American and Hispanic persistence gaps compared to Whites
- First Year cumulative GPA explains the persistence gap between low ACT scorers and middle ACT scorers
- Students with a first year cumulative GPA below a D have lower odds of persisting compared to B average students (.013)

Persister from Year 1 to Year 3

- First year cumulative GPA explains the Low to Middle ACT score persistence gap and the Hispanic to White persistence gap
- Students with a first year cumulative GPA below a C are less likely to persist than B average students (.396 and .020 for C and D average, respectively)
- Whites are four times more likely to persist than Native Americans
- Michigan residents are 78.9% more likely to persist than Non-Michigan residents

Persister from Year 1 to Year 4

- Grades explain the African American and Hispanic persistence gap compared to Whites and the ACT persistence gap between low scorers and middle scorers
- Native Americans have .172 odds of persisting compared to Whites
- Low income students are 48.9% less likely to persist than middle income students
- Students with a first year cumulative GPA of C or below have lower odds of persisting than students with B cumulative GPA (.490 and .033 for C and D average, respectively)

Persister from Year 1 to Year 5

- ACT and first year grades explain the Hispanic persistence gap compared to Whites
- African American and Native American students are 46.1% and 76.1%, respectively, less likely to persist than Whites
- Compared to students with B cumulative first year grades, A students are 75.5% more likely to persist, whereas students with C or D average are 53% and 95.4%, respectively, less likely to persist

Limitations

The outcome variable coded graduates as a persister, hence does not distinguish between a graduate and a persister who is still enrolled. Future analysis will separate graduates from enrolled persisters, as well as distinguish persisters who remain in the College of Engineering and those who transferred to another college in the university.

Conclusions

The results indicate there is no gender gap in persistence but there is a racial gap. The persistence racial gap to year 2 is explained by ACT scores and persisting to years 3 and 4 are explained by first year grades. This demonstrates that students who score lower on their ACT scores are less likely to persist for the first two years, but after the third year, first year grades influence persistence.

Acknowledgements

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* Due to poster restrictions, limited results were presented. If you have questions or comments, please contact me.