EARLY INDICATORS OF STUDENT SUCCESS

RESEARCH BRIEF

ANALYTICS & DECISION SUPPORT

OFFICE OF PLANNING, ANALYTICS & INSTITUTIONAL RESEARCH

JAMES MADISON UNIVERSITY

Overview

Once a student submits a deposit to JMU, there are several steps that must be taken before they start their JMU career as a first-year, first-time student. While JMU has traditionally developed processes that remove barriers for matriculation and provided added assistance to students who do not complete steps in a timely manner, the findings from this study suggest that adverse outcomes are occurring at higher rates for new first-year students who are slow to complete the First-year Survey (by June 1) and/or register late for fall courses (after July 1). While this study does not identify the reasons for these findings, the university should consider operational and behavioral factors when considering a course of action. Administrators may wish to evaluate enrollment management strategies that are disadvantaging certain students inadvertently.

Purpose

The purpose of this project was to identify early predictors of adverse student outcomes among first-year, first time students. Adverse outcomes were operationalized as failure to progress (based on class standing), discontinuing from JMU, and poor performance in courses. This study focused specifically on first time, first-year students admitted in Fall 2021 and Fall 2022.

Highlights

- The timing of first time, first-year students' enrollment and completion of the First-year Survey can be used as early indicators of student outcomes.
- In unadjusted analyses, students who enrolled July 1 or later had higher rates of failure to progress, discontinuation and receiving a D, F or W in a course. Students who completed the survey June 1 or later had higher rates of failure to progress, discontinuation and receiving a D, F or W in a course.
- After controlling for demographics, credit load, GPA and college, students who enrolled after July 1 were **31% less likely to progress** and **37% less likely to be retained** than students who enrolled earlier in the spring and summer.
- After controlling for demographics, credit load, and college, students who completed the first-year survey June 1st or later were **58% less likely to progress** than students who completed it earlier.

Implications

This study identifies potentially understudied indicators of at-risk student behavior. The results of this study could be used for early identification of first time, first-year students who experience academic challenges in their first-year. It is possible, though certainly not proven, that students who receive extra time and assistance enrolling in the summer preceding their first term are not as prepared for the rigors of higher education. While we may take extra effort to help these students with enrollment, what do we do for them once they are here? Efforts to continue added outreach may be needed. This information could also be used to guide orientation outreach efforts over the summer prior to students' arrival. With first-year classes consistently exceeding targets, the university may consider the amount of effort it is providing to helping these students—many of whom miss necessary deadlines—enroll at JMU.

Limitations

The results should be interpreted with caution, as the analyses cannot establish a causal relationship between our predictors of interest and outcomes. Additionally, while we found significant effect sizes between some of the predictor variables and outcomes, there is a large amount of variability in the outcomes that is not explained by the models.[1] This is likely because many other factors that we cannot directly measure and model influence the outcomes of interest.

Methods

We selected two potential early indicators of student outcomes related to milestones students complete the summer leading up to students' first semester.

1. Enrollment timing: Course enrollment for first time, first-year students at JMU opens on June 1st. An indicator was created to denote whether or not a student had enrolled in any courses as of June 30th of their admit year.
2. First-year Survey Completion: The First-year Survey is an early step in the One Book process, available in March for the incoming fall class. An indicator was created to denote when a student had completed the survey; before June 1st, June 1st or later, or not at all.

Data were obtained from PeopleSoft and the First-year Survey. The population included only Fall 2021 & Fall 2022 cohorts of first time, first-year students. Census data were used to determine if a student was retained, based on whether they were enrolled as of census the following fall.

Definitions

- Failure to progress: students who do not progress to at least sophomore standing by the second year (28+ earned credits).
- Retention: one year retention as indicated by whether the student enrolled in the following fall semester.
- End of term GPA: obtained from course enrollment records.

DFW Grades: Whether a student received a D, F, or W (withdrawal) course grade in any classes their first semester.

Initially, descriptive statistics (frequencies and proportions) were used to describe the distribution of outcomes based on the predictor variables of interest. Subsequently, three regression models were conducted exploring whether predictors of interest were associated with progression, retention and end of term GPA respectively. Demographic information (gender, race, first generation status and residency), credit load, and college were included as control variables. End of term GPA was included as a control variable in the models predicting progression and retention.

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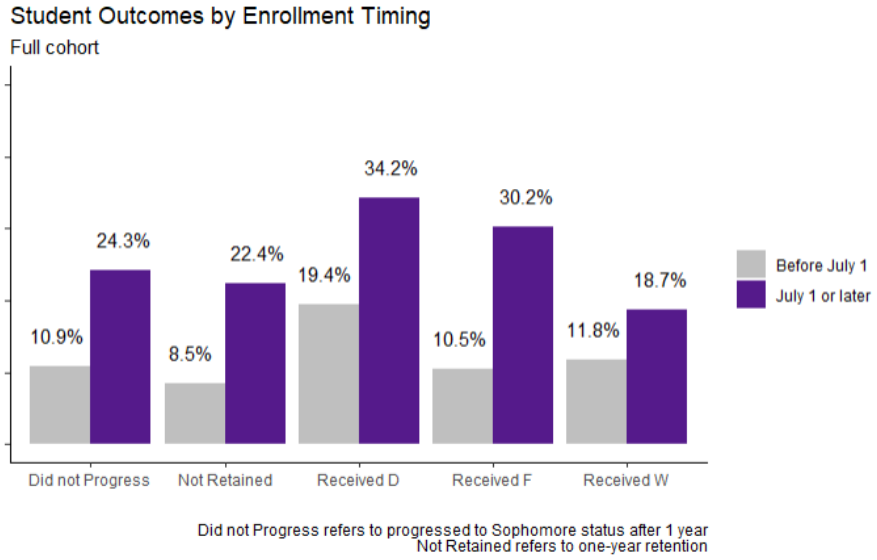
[1] At least 10% variance explained is considered acceptable in social science and education research. Ozili, Peterson K, The Acceptable R-Square in Empirical Modelling for Social Science Research (June 5, 2022). Social Research Methodology and Publishing Results, Available at SSRN: https://ssrn.com/abstract=4128165 or http://dx.doi.org/10.2139/ssrn.4128165

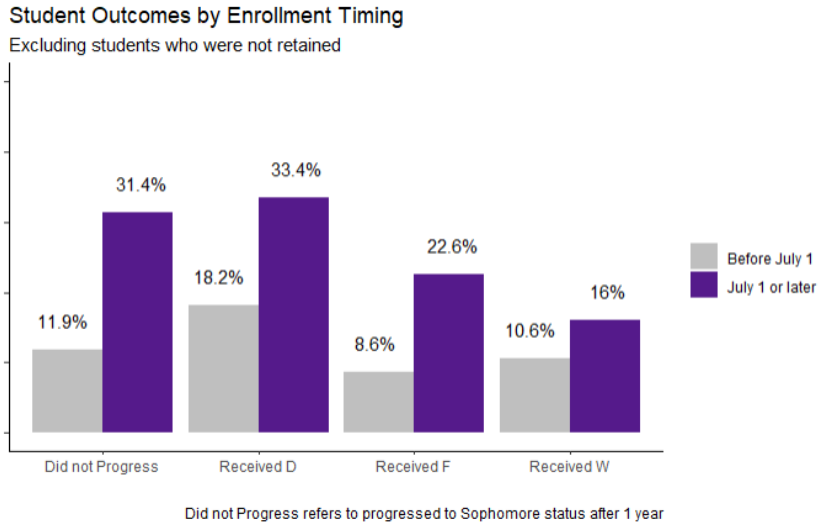
Findings

The analysis included data from 9,586 first time, first-year students enrolled in Fall 2021 and Fall 2022.

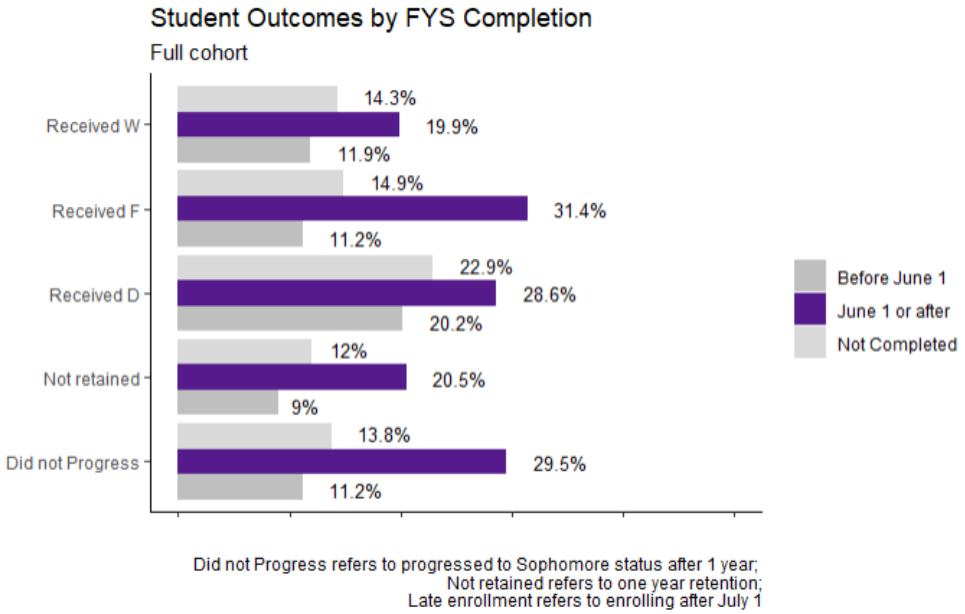
Descriptive Analyses

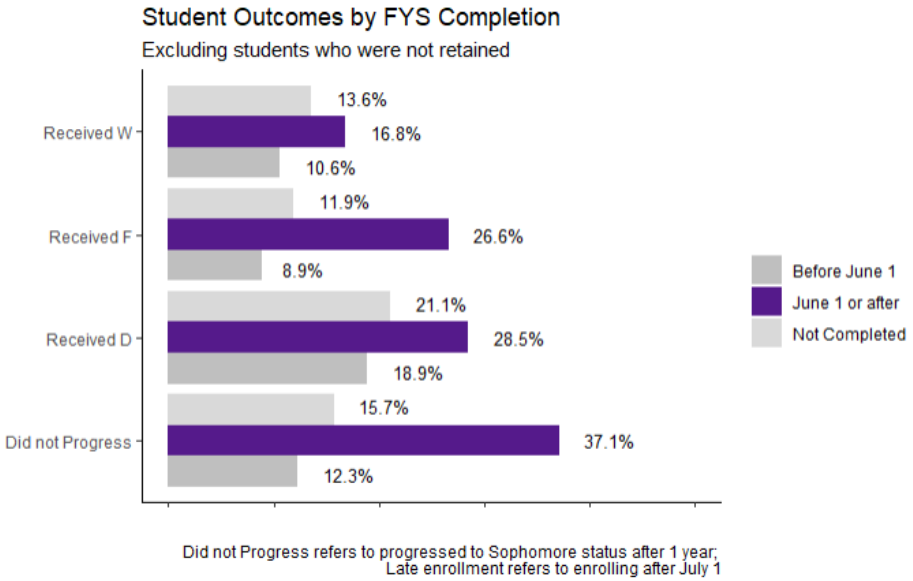
Unadjusted, descriptive analyses demonstrated that students who enrolled July 1st or later had higher rates of not progressing, discontinuation, receiving a D, F or W in a course. The graphs below present this information for the full cohort (includes students who were not retained, and retention is included as an outcome) and the retained cohort (retention is not included as an outcome). The graphs present the percent of students in each respective predictor category (e.g., Enrolled before July 1 or Enrolled July 1 or later) who had each outcome of interest. For example, in the full cohort, 24.3% of students who enrolled July 1 or later did not progress beyond freshmen status by their second year compared to 10.9% of students who enrolled before July 1.





Similarly, students who completed the First-year Survey June 1st or later had higher rates of not progressing, discontinuation, receiving a D, F or W in a course compared to students who completed the survey prior to June 1st, *and* students who did not complete the survey at all. The graphs below present this information for the full cohort (includes students who were not retained, and retention is included as an outcome) and the retained cohort (retention is not included as an outcome). The graphs present the percent of students in each respective predictor category (e.g., Completed the survey prior to June 1 or later, or not completed) who had each outcome of interest. For example, in the full cohort, 29.5% of students who completed the survey June 1st or later did not progress beyond freshmen status by their second year.





Mean end of term GPA was higher for students who completed the First-year Survey prior to June 1st (2.93, 0.82) compared to students who completed the survey June 1st or later (2.36, 1.01) or not at all (2.78, 0.86). Mean end of term GPA was higher for students who enrolled in classes prior to July 1st (2.95, 0.79) compared to students enrolled July 1st or later (2.30, 1.03).

Regression Analyses

The following section outlines the results of two binary (progression and retention) and one linear regression (end of term GPA) analyses, each with a different outcome of interest as the dependent variable.

Progression

After controlling for demographics, credit load, GPA and college, timing of enrollment and survey completion were significant predictors of student progression. Students who enrolled July 1st or later were 31% less likely to progress beyond freshmen status (i.e., accumulated 28+ credits) by the end of their first-year (OR = 0.69, 95% CI, 0.55, 0.87). Students who completed the First-year Survey June 1st or later were 58% less likely to progress beyond freshmen status by the end of their first-year (OR = 0.42, 95% CI, 0.30, 0.59). Students who did not complete the First-year Survey did not differ significantly from students who completed the survey prior to June 1st. This model accounted for 36% of the variance in progression outcomes.

Retention

After controlling for demographics, credit load, GPA and college, timing of enrollment was a significant predictor of one-year retention. Students who enrolled July 1st or later were 37% less likely to be retained after one year (OR = 0.63, 95% CI, 0.51, 0.78). First-year survey timing was not a significant predictor of retention after controlling for the aforementioned factors. This model accounted for 16% of the variance in retention outcomes.

First Term GPA

After controlling for demographics, credit load and college, timing of enrollment was a significant predictor of end of term GPA. Students who enrolled July 1st or later had significantly lower GPAs than students who enrolled prior to July 1st (β = -0.53, 95% CI, -0.59, -0.48). Students who completed the first-year survey after June 1st had significantly lower GPAs compared to students who completed the survey prior to June 1st (β = -0.22, 95% CI, -0.31, -0.12). Students who did not complete the first-year survey also had significantly lower GPAs than students completing the survey prior to June 1st; however, the effect size was minimal despite statistical significance (β = -0.09, 95% CI, -0.14, -0.04). This model accounted for 11% of the variance in end of term GPA.