Research Brief

Nov. 2022

UCONN | UNIVERSITY OF CONNECTICUT
OFFICE OF BUDGET, PLANNING AND INSTITUTIONAL RESEARCH

The Impact of Academic Advisor Type on Student Academic Outcomes

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Executive Summary

This study evaluates the effect of academic advisor type on student academic outcomes while controlling for important predictor variables identified in previous studies as having the ability to influence student performance, retention, and graduation. According to the study's findings, students with faculty advisors have a higher probability of earning a cumulative grade point average (CGPA) greater than 3.0 at the end of their first academic year. However, increasing faculty advisors' advising workload can negatively impact students' CGPA but improve student retention. Additionally, we found that advisor type has no statistically significant impact on student retention or student graduation time.

Introduction

Every year, a considerable number of students across the United States leave college and fail to complete their degree. Approximately 29 percent of students who enrolled in four-year public universities in the fall of 2017 did not return for a second year [1]. Student retention and timely graduation are said to be a result of continuous interaction between students and the various university support structures [2]. There are a multitude of factors that may impact students' decisions to remain enrolled in college or drop out.

Students join colleges with a range of characteristics (student socioeconomic background, aspirations and goals, cultural background, prior educational experiences, etc.) that influence their motivation, resilience, and persistence. Due to the diverse nature of students and their needs, identifying a unique approach to improve student retention, performance, and graduation has become increasingly complex.

To support student success amid its complexity, universities rely on research to identify and address student academic problems through institutional programming aimed at student success. One area that has been identified to impact student academic outcomes is academic advising. Besides connecting students to campus resources and services, academic advisors provide educational guidance and help students identify and achieve long-term academic and professional goals. As a result, advisors are uniquely positioned to foster long-term relationships with students, often helping to establish a sense of institutional connection [3] [4]. Therefore, it is important to investigate the aspects of academic advising most likely to impact student academic outcomes.

One such area is understanding whether observable characteristics such as advisor type and advisee load have any discernable impact on student academic outcomes. Throughout this study, the term advisor type refers to the types of academic advisors, in terms of whether they are faculty advisors or professional advisors. A faculty advisor is primarily responsible for teaching, conducting research, and advising students in their academic area of interest. On the other hand, professional advisors are hired mainly to provide academic advising and offer students a broader perspective on their academic experience.

Research Question

This study aims to answer the following questions:

- Does advisor type and advising load affect first year students' retention and GPA?
- Does academic advisor type and advising load affect students' graduation time?

The null hypothesis for the study is that advising is so variable at UConn that there will be no correlation between advising type and student outcomes.

Methodology

Theoretical Framework

Academic advisors may have varying impacts on students' academic outcomes. Faculty advisors, for example, are usually experts in their field and bring an in-depth understanding when advising students, particularly on course-related questions and concerns. Professional advisors, on the other hand, have a broader perspective on student academic experiences and advise students accordingly. Additionally, student-level observations are not independent, given that students in the same department share similar relationships with academic outcomes such as GPA and graduation. Specifically, students within a college/school often share a number of characteristics not shared by other colleges/schools, such as an instructor, class time, academic advisors, classroom environment, and so on. This non-dependent nature of observations, if not accounted for, underestimates the variance or overestimates the accuracy of the effect of different university support services on student academic outcomes [5]. When there are multiple levels, such as students seeing the same academic advisor from their primary department or college, the variability in their academic outcome can be thought of as being either within group or between groups. The study's hierarchical structure makes it ideal for a multilevel mixed analysis.

Multilevel analysis is a technique intended for nested data (e.g., students nested under advisors who are nested under departments). Unlike ordinary least squares (OLS), multilevel models account for the interdependence of study subjects divided into groups. The model, therefore, analyzes the impact of academic advisor type on the portion of variance in student retention, performance, and graduation occurring between departments while modeling the influence of students' prior academic performance, race, ethnicity, gender, and other socio-economic characteristics without aggregating these covariates to the department level. Thus, the model allows for the dependency of student performance within departments and examines the extent of department variation in retention and graduation.

Data and Method

The data used in the study is based on full-time students who enrolled at UConn between Fall 2016 to Fall 2021. The outcomes of interest are students' CGPA at the end of their first academic year, retention to the fall of year two, and student graduation time. The main predictors of interest are advisor type and advisee load. To estimate the impact of advisor type on student retention and CGPA, we estimate a multilevel mixed-effect logistic regression model of the following form:

$$Y = X\beta + Zb + \epsilon \tag{1}$$

Where

- Y represents an n x 1 vector of the outcome variables (GPA, retention, graduation)
- X is an n x p matrix of independent variables for fixed effects - β
- Z is an nxq matrix of independent variables for the random effects b
- β is a $1xp$ vector of fixed effect parameters

- b is a $1xq$ independent vector of random effects
- ϵ is an $nx1$ independent vector of random errors

The model assumes b is independent of ϵ

Table 1 -Descriptive Statistics

	Obs	Mean	Std. Dev
First Year Retention	31,420	0.719	0.450
Time to Graduation	7,626	3.676	0.360
End of First Yr CGPA	31,232	3.142	0.747
End of Sec. Yr CGPA	23,225	3.285	0.529
Entry Age	31,420	17.928	0.594
FYE Flag	31,420	0.480	0.500
Pell Grant (First Year)	31,420	0.190	0.393
Pell Grant (second Year)	31,420	0.135	0.342
Second Semester GPA	31,232	3.054	1.007
Fourth Semester GPA	23,225	3.215	0.921
First Generation	31,420	0.331	0.471
Advisee Load (Total)	31,420	95.504	61.234
Advisee Load (Pro. Adv.)	26,296	111.748	53.299
Advisee Load (Faculty Adv.)	5,124	12.140	10.500
Honors	31,420	0.104	0.306

The outcomes of interest are:

- Semester Two GPA
- Retention to the Fall of Academic Year Two
- Student Graduation Time

Control variables **(Student Level):**

- Age
- Pell Grant
- Student socio-economic background (CAPs Flag)
- Honors
- First Generation
- Student Ethnicity
- Entry Campus
- Semester one GPA

Control Variables **(Advisor Level):**

- Advisor Type (Faculty Advisor vs. Pro. Advisor)
- Advisee Load

Control Variable **(Faculty Level):**

- Faculty Rank

Descriptive Statistics

Table 1 shows the descriptive statistics of the variables used in the study. Comparatively, academic advisors have an average load of 12 students, whereas professional advisors have an average advisee load of 112 students.

Approximately nineteen (19) percent of students in the sample received pell grants, and thirty-three percent were first-generation students.

Results

Using a multilevel mixed-effects model, Table II models (1), (3), and (5) estimate the impact of academic advisor type on student semester two CGPA, student retention to the fall of academic year two, and time students spend to graduate while controlling for race, entry campus, and year fixed effects. Our base reference for race, entry campus and year are White, Storrs campus and 2016 respectively. Table II models (2), (4), and (6) only looks at faculty advisors' impact on student's academic outcomes mentioned above.

Model (1) shows that students with faculty advisors do have a higher CGPA at the end of their first year in college as compared to students with professional advisors. However, increasing faculty advisor workload can hurt students' CGPA but improve retention.
Models (3) and (5) indicate that there is no statistically significant difference between advisor type on student retention and the time students spend to graduate. Students in the honors program and students receiving pell grants, on the other hand, are more likely to have a semester two CGPA greater than 3.0. First-generation students, however, have a lower likelihood of earning a semester two CGPA greater than 3.0.

Estimates from model (3) indicate that, students who are in the honors programs and those receiving pell grant have a higher probability of being retained beyond first year. First generation students have a lower probability of being retained after their first year. The findings clearly show that students who are the first in their families to attend college tend to have lower academic performance overall, and therefore, have a decreased chance of being retained after their first year in college, all other things being equal.

The results from Model (5) indicate that there is no significant difference between advisor type on the time students spend to graduate after controlling for

the student's academic level. The results further reveal that first-generation students who are retained beyond the first year tend to graduate early - all things being equal, while students on pell grant tend to spend more time to graduate.

Conclusion

This study provides a deeper understanding of the impact of academic advisor type on student performance, retention, and graduation time. The study's findings clearly showed that faculty advisors improve students' CGPA. However, increasing the advising load of faculty advisors can negatively impact students CGPA but improve retention. Furthermore, the study found that advisor type has no statistically significant impact on student retention or graduation time. This finding highlights how difficult it is to comprehend all of the factors that influence student retention and timely graduation. This finding lends credence to the theory that it is difficult to identify all the factors that have an effect on student retention and that there is no single factor or set of factors that can adequately predict student attrition. However, the more research is conducted into the effectiveness of programs and support services within the university, the better the chances of understanding the important factors that impact students.

Limitations & Recommendations for Future Research

First, advising sessions differ widely in terms of consistency and quality, as well as the nature of advisor-advisee relationships across and within departments. Although this study was able to control for part of the variation within and between departments, the quality of advising and departmental differences still cannot be easily measured.

Second, because UConn is test-optional, it is difficult to control for students' college readiness. It'll therefore be necessary to collect a more comprehensive census data about students at the high school level. A more comprehensive understanding of student college preparedness, socio-economic and demographic characteristics will assist the university's leadership in providing specialized services to incoming students to improve their performance and graduation time.

References

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[5] Raudenbush S. W., Bryk A. S. (2002). Hierarchical linear models: Applications and data analysis methods (vol., p. 523). Thousand Oaks, CA: Sage.

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Table II - Regression Results

	CGPA	CGPA	Retention	Retention	Time to Degree	Time to Degree
	(1)	(2)	(3)	(4)	(5)	(6)
Advisor Type (Faculty)	0.169***		0.094		-0.015	
	(0.053)		(0.078)		(0.016)	
Advisee Load (Faculty)	0.000	-0.016***	0.001***	0.004	0.000	0.002
	(0.000)	(0.005)	(0.000)	(0.007)	(0.000)	(0.001)
Entry Age	-0.027	0.030	-0.129***	-0.123	-0.011	0.016
	(0.021)	(0.059)	(0.033)	(0.086)	(0.007)	(0.015)
Pell Grant	0.198***	0.234**	1.770***	1.632***	0.080***	0.112***
	(0.035)	(0.098)	(0.067)	(0.182)	(0.009)	(0.025)
Honors	1.668***	1.781***	0.290***	0.279	-0.007	-0.019
	(0.072)	(0.163)	(0.101)	(0.207)	(0.014)	(0.023)
First Gen.	-0.579***	-0.461***	-0.438***	-0.337***	-0.022**	-0.017
	(0.028)	(0.084)	(0.046)	(0.129)	(0.010)	(0.028)
American Indian	-0.477***	0.803	-0.006	-0.052	-0.031	-0.022
	(0.146)	(0.495)	(0.217)	(0.584)	(0.046)	(0.060)
Asian	-0.002	-0.293*	-0.053	0.273	0.004	0.053*
	(0.082)	(0.154)	(0.119)	(0.251)	(0.020)	(0.030)
African American	-0.258***	0.012	-0.026	0.000	0.024	0.012
	(0.062)	(0.403)	(0.110)	(.)	(0.019)	(0.036)
Hispanic / Latino	-0.078	0.058	-0.086	-0.126	0.060**	0.023
	(0.055)	(0.185)	(0.100)	(0.289)	(0.027)	(0.070)
Native Hawaiian	-1.082	-1.028	-1.125	-0.616	-0.039***	-0.018
	(0.696)	(0.707)	(0.841)	(0.854)	(0.004)	(0.016)
Two or More Races	0.192	0.350	-0.271	-0.809	-0.179***	-0.164***
	(0.363)	(0.611)	(0.652)	(0.689)	(0.039)	(0.057)
Unknown	-0.048	-0.065	0.016	0.488**	0.003	0.043
	(0.049)	(0.155)	(0.080)	(0.239)	(0.016)	(0.057)
Entry Campus (AVYPT)	-0.187**	-0.116	-0.767***	-0.955***	0.100***	0.123**
	(0.073)	(0.168)	(0.108)	(0.209)	(0.028)	(0.056)
Entry Campus (HRTFD)	-0.816***	-0.041	-0.664***	-1.141	0.141***	0.028
	(0.042)	(0.849)	(0.067)	(1.146)	(0.019)	(0.062)
Entry Campus (STMFD)	-0.700***	-0.575***	-0.898***	-0.596***	0.157***	0.082***
	(0.042)	(0.130)	(0.065)	(0.171)	(0.015)	(0.028)

Standard errors in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Entry Campus (WTBY)	-0.437***	-0.477***	-0.871***	-0.420*	0.121***	0.088*
	(0.064)	(0.159)	(0.104)	(0.236)	(0.031)	(0.052)
Year (2017)	0.180***	0.142	-0.072	-0.252	-0.106***	-0.136***
	(0.045)	(0.129)	(0.069)	(0.181)	(0.010)	(0.022)
Year (2018)	0.037	-0.075	-0.022	-0.021	-0.655***	-0.766***
	(0.044)	(0.125)	(0.068)	(0.184)	(0.034)	(0.043)
Year (2019)	0.562***	0.351***	-0.192***	-0.414**	-1.531***	-1.672***
	(0.047)	(0.134)	(0.068)	(0.181)	(0.053)	(0.073)
Year (2020)	0.247***	0.013	-0.177***	0.031		
	(0.045)	(0.146)	(0.069)	(0.214)		
Year (2021)	-0.004	-0.131				
	(0.046)	(0.143)				
Asst. Professor		0.181		-0.227		0.009
		(0.131)		(0.190)		(0.025)
Assc. Professor		-0.116		0.055		-0.000
		(0.099)		(0.149)		(0.021)
First Sem. GPA			1.073***	1.106***		
			(0.024)	(0.067)		
Stu. Level (Junior)					-0.333***	-0.357***
					(0.082)	(0.035)
Stu. Level (Sophomore)					-0.134***	-0.112**
					(0.024)	(0.044)
_cons	1.353***	0.675	1.260**	0.975	3.922***	3.415***
	(0.386)	(1.066)	(0.594)	(1.552)	(0.121)	(0.270)
N	31420	4228	26122	3626	7626	1164
χ^2	2099.58***	301.34***	3292.31***	443.44***	2171.98***	435.50***

Standard errors in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

χ^2 is a test of the joint hypothesis that all of the fixed effects coefficients in the models are zero. Since the p-values < 0.01, we reject the null hypothesis and conclude that the fixed effect coefficients are statistically different from zero.