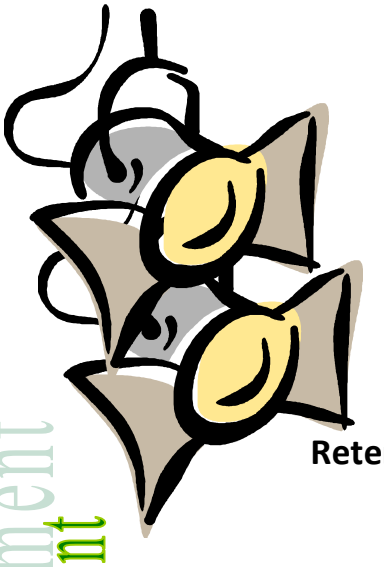

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SPOTLIGHT ON OU

Retention Rates by First Term Credit Load and ACT Score

Introduction

Previous OIRA research has shown that the rate at which students return with sophomore status is highly predictive of 6 year graduation rates. Therefore, it would seem like good policy to encourage students to take 16 credits their first semester. However, there is potential concern that such a policy may have negative consequences for students who have low ACT scores.

This brief report provides data that attempts to answer the question of whether or not it is good policy to encourage students to take 16 credits their first semester, regardless of their ACT score. Though there are several potential outcomes of interest through which this question could be addressed, this report will focus exclusively on first year retention rates.

Conclusion

Evidence indicates that students would benefit from a first semester credit load of 16, rather than 12, regardless of their ACT score, at least when concerning student retention rates. This report supports a policy recommendation that is designed to encourage all students, regardless of their ACT score, to take 16 credits their first semester, as opposed to 12 credits.

Methods and Interpretation Primer

It is relatively straightforward to analyze whether or not credit load can impact retention rates and whether or not this impact is equitable across all levels of ACT scores. A basic linear regression design is sufficient to answer this question.

The regression analysis attempts to predict first year retention rates[1] by using 3 other variables: ACT scores, credit load, and an 'interaction effect.' The first two variables, first term credit load (either 12 or 16) and ACT composite score (10 through 30), show what happens to retention rates as either the ACT score increases or the first term credit load increases. The 'interaction effect' shows how retention rates change across ACT scores when the credit load varies. It is this third variable that will tell us whether or not the policy of encouraging students to take 16 credits their first semester is equitable across ACT scores.

[1] Retention rates were calculated for each ACT score by Credit Load condition, and it is this rate that the regression equation is attempting to predict.

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When interpreting the results of a regression analysis, there are two important attributes to consider about each input variable. The first attribute that needs to be considered is the p-value, a measure of probability that varies from 0 to 1. If this value is high, typically anything above 0.05, then the variable does not add any information to the equation, and the associated interpretation is that the variable does not have any impact on retention rates. If the p-value is low, typically below 0.05, then we assume the variable has substantial impact on retention, and thus, it is important enough to warrant further attention. The second important attribute to consider is the mathematical sign (positive or negative) of the 'regression coefficient'. A 'regression coefficient' is simply technical jargon that represents the relative impact of the variable in the regression equation. The actual value of the regression coefficient is not of any concern, at least not for this analysis. If the sign of the regression coefficient is positive it means that as the variable increases in value, retention rates increase. If the sign of the regression coefficient is negative it means that as the variable increases in value, retention rates decrease. It is important to understand that these two attributes should be considered in this order. The sign of the regression coefficient is only important if the p-value is low. If the p-value is high, then the sign of the regression coefficient doesn't matter, since the variable is not (linearly) related to retention rates.

Presentation of Data

Table 1 details the results of the regression analysis. For those interested, the R^2 of the regression equation is 0.54.

Table 1: Regression Results

Variable	Significance Value	Regression coefficient
ACT Score	<0.001	0.014
Credit Load	0.615	-0.013
Interaction Effect	<0.001	0.004
(Constant)	n/a	0.401

Interpretation and Discussion

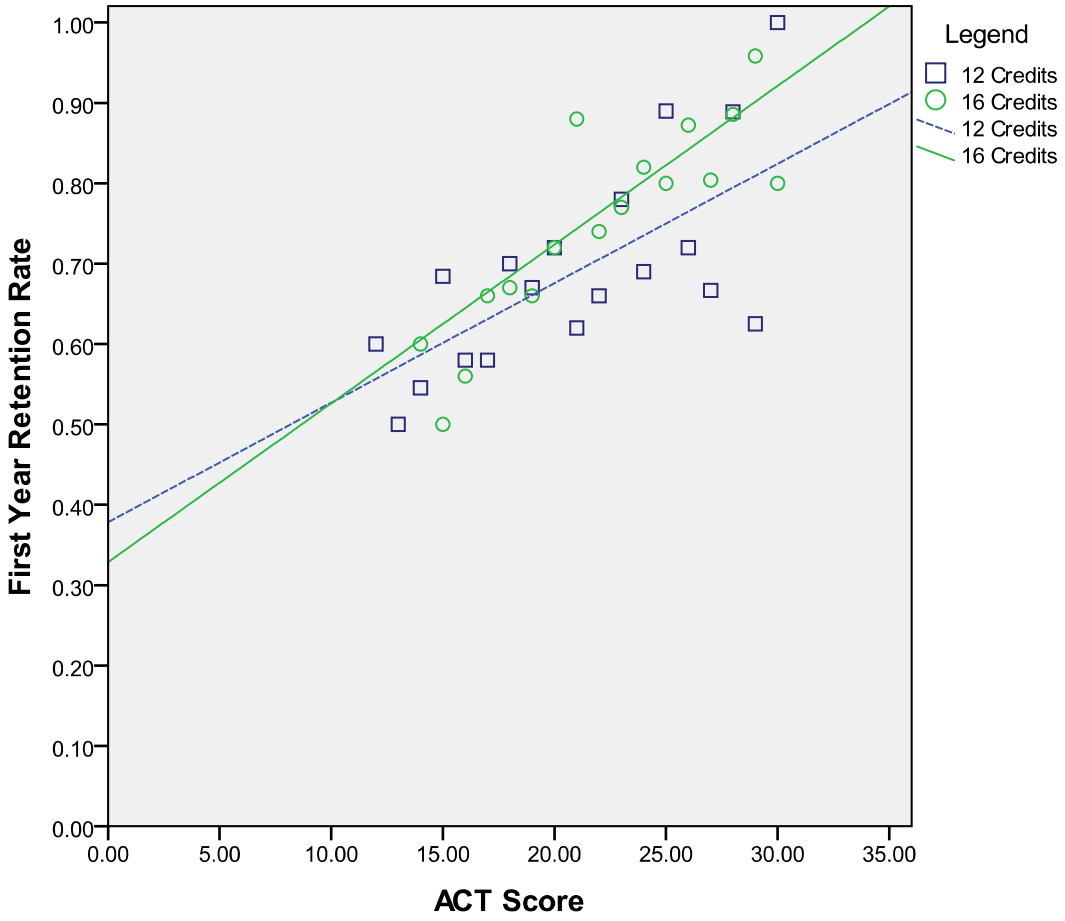
The first variable listed in Table 1 is ACT score, and the results show that retention rates increase with higher ACT scores. The second variable from Table 1 is credit load, and here the results suggest that credit load is not related to retention rates. But this is not the entire story. The final variable, the interaction effect, is significant (and positive). This finding suggests that the effect of credit load is dependent upon the level of ACT score one examines. To say it another way, the effect of credit load is not the same for all levels of ACT score. The sign of the regression coefficient for the interaction effect tells us that as ACT scores increase, higher credit loads are associated with a positive increase in retention rates. Unfortunately, this information alone is not enough to help us answer the policy question posed at the start of this report.

In order to answer this question, we need to know at what point the interaction effect predicts that a high first semester credit load would decrease retention rates. It is possible to predict this point from the regression equation, but it is much more effective to display this information visually.

Figure 1 shows first year retention rates by ACT score for two groups: students taking 12 credits and students taking 16 credits during their first term. The regression line for each group is plotted. It is visibly apparent that the lines do not have the same slope (which confirms that there is an interaction effect). From the figure, it is also apparent that for almost all ACT scores, there is a positive gap between 12 and 16 credits. It is not until you reach a very low ACT score, below 10, that the regression equation predicts students would have a higher retention rate under a 12 credit scenario. This is a very important finding, because there was no FTIAC in 2008 with an ACT score below 11.

Since the point at which the regression equation predicts 16 credits decreases retention rates (relative to the 12 credit condition) is lower than our typically lowest scoring ACT student, the policy of encouraging students to take 16 credits their first semester appears to be a very sound policy. This is especially so, since other OIRA data suggests that the number of credits that students take their first semester is related to both the rate at which they graduate and the speed at which they graduate (Appendix A contains detailed data regarding this observation).

Figure 1: First Year Retention Rates by ACT Score by First Semester Credit Load



Appendix A:

Retention and Graduation Rates for FTIACs Entering in 2002 and 2003 by

High School G.P.A. and First-term Credits

2002 COHORT							
		2.5-2.99		3.0-3.49		>= 3.5	
		12-13	14+	12-13	14+	12-13	14+
One Year	Enrolled	66.2%	72.8%	70.8%	75.2%	80.4%	84.6%
	Drop	33.8%	27.2%	29.2%	24.8%	19.6%	15.4%
Two Years	Enrolled	51.0%	55.3%	57.5%	64.3%	69.2%	77.2%
	Drop	49.0%	44.7%	42.5%	35.7%	30.8%	22.8%
Three Years	Enrolled	43.0%	50.4%	52.3%	61.3%	66.4%	72.4%
	Graduated	0.4%	1.3%	0.6%	0.9%	0.5%	2.0%
	Drop	56.5%	48.2%	47.1%	37.8%	33.2%	25.6%
Four Years	Enrolled	34.5%	32.0%	38.4%	40.0%	51.4%	41.3%
	Graduated	**6.0%**	**12.7%**	**10.1%**	**21.3%**	**15.0%**	**30.7%**
	Drop	59.5%	55.3%	51.4%	38.7%	33.6%	28.0%
Five Years	Enrolled	17.8%	16.2%	18.8%	20.4%	17.8%	12.2%
	Graduated	**19.9%**	**27.6%**	**26.9%**	**40.4%**	**47.2%**	**59.8%**
	Drop	62.3%	56.1%	54.3%	39.1%	35.0%	28.0%
Six Years	Enrolled	8.6%	8.3%	7.5%	7.4%	5.6%	5.1%
	Graduated	**29.1%**	**35.5%**	**38.2%**	**52.6%**	**60.3%**	**66.5%**
	Drop	62.3%	56.1%	54.3%	40.0%	34.1%	28.3%
TOTAL N		467	228	346	230	214	254
2003 COHORT							
		2.5-2.99		3.0-3.49		>= 3.5	
		12-13	14+	12-13	14+	12-13	14+
One Year	Enrolled	62.5%	70.4%	69.2%	77.5%	77.3%	85.2%
	Drop	37.5%	29.6%	30.8%	22.5%	22.7%	14.8%
Two Years	Enrolled	46.7%	50.0%	59.9%	63.2%	66.4%	73.6%
	Drop	53.3%	50.0%	40.1%	36.8%	33.6%	26.4%
Three Years	Enrolled	41.5%	47.4%	55.0%	57.4%	62.7%	70.0%
	Graduated	0.2%	0.0%	0.0%	1.6%	1.0%	2.0%
	Drop	58.3%	52.6%	45.0%	41.1%	36.3%	28.0%
Four Years	Enrolled	32.0%	33.5%	43.9%	38.0%	49.2%	38.8%
	Graduated	**4.2%**	**11.7%**	**8.7%**	**16.7%**	**12.2%**	**30.4%**
	Drop	63.7%	54.8%	47.4%	45.3%	38.6%	30.8%
Five Years	Enrolled	18.3%	14.3%	22.9%	13.2%	15.9%	14.4%
	Graduated	**16.0%**	**26.5%**	**29.4%**	**41.9%**	**43.4%**	**55.2%**
	Drop	65.7%	59.1%	47.7%	45.0%	40.7%	30.4%
Six Years	Enrolled	8.1%	7.0%	11.7%	7.0%	7.1%	6.0%
	Graduated	**24.6%**	**33.5%**	**40.3%**	**49.2%**	**54.2%**	**63.6%**
	Drop	67.3%	59.6%	48.0%	43.8%	38.6%	30.4%
TOTAL N		568	230	367	258	295	250