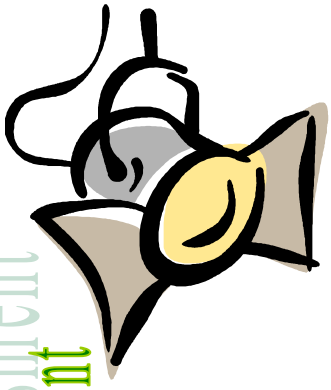

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SPOTLIGHT ON OU

Retention, Graduation, and First-Term Credits

Introduction

Previous OIRA research has repeatedly shown that first year retention rates are higher for students that take 16 credits during their first term compared with students that take 12 credits (for example, see footnotes[1,2]). In previous investigations, this relationship seemed to hold true for nearly all ACT scores.

This spotlight extends these previous works to estimate whether or not this finding remains consistent for every school and college, or if certain areas of the university behave differently than others. In addition to extending previous work, this spotlight uses a much larger combined pool of students (all FTIACs from 2000-2008) to provide additional analysis on the impact that first-term credits have on graduation rates.

Conclusions and Policy Implications

The main conclusions in OIRA's previous work have been confirmed by this larger analysis. Students that take more credits during their first term have higher retentions rates than those that take fewer credits, regardless of the student's incoming academic ability. This research also confirms that students who take more credits during their first term have much higher graduation rates, even after accounting for differences in incoming academic ability.

As a policy guideline, the data suggest that students should be encouraged to take 14 or more credits during their first-semester. Taking more credits during the first-semester will also help students achieve sophomore status by the end of their first-year. This milestone has previously been linked to higher graduation rates and will be required to renew most OU merit scholarships beginning in 2011.

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[1] OIRA. (2010). *Retention Rates by Credit Load and ACT Scores*. OIRA Spotlight, No. 18.
[2] Duby, P., Schartman, L. (1996, October). *An Analysis of the Relationship between Credit Hour Loads at College Onset and Subsequent Academic Performance: A Multi-Institution Pilot Project*. Paper Presented at the Michigan Association for Institutional Research, Cadillac, MI.

A Note about Correlation and Causality

The data presented here is correlational. Though none of the methodological techniques presented in this report demonstrate causality, the strength and consistency of these relationship suggests that a causal relationship is likely.

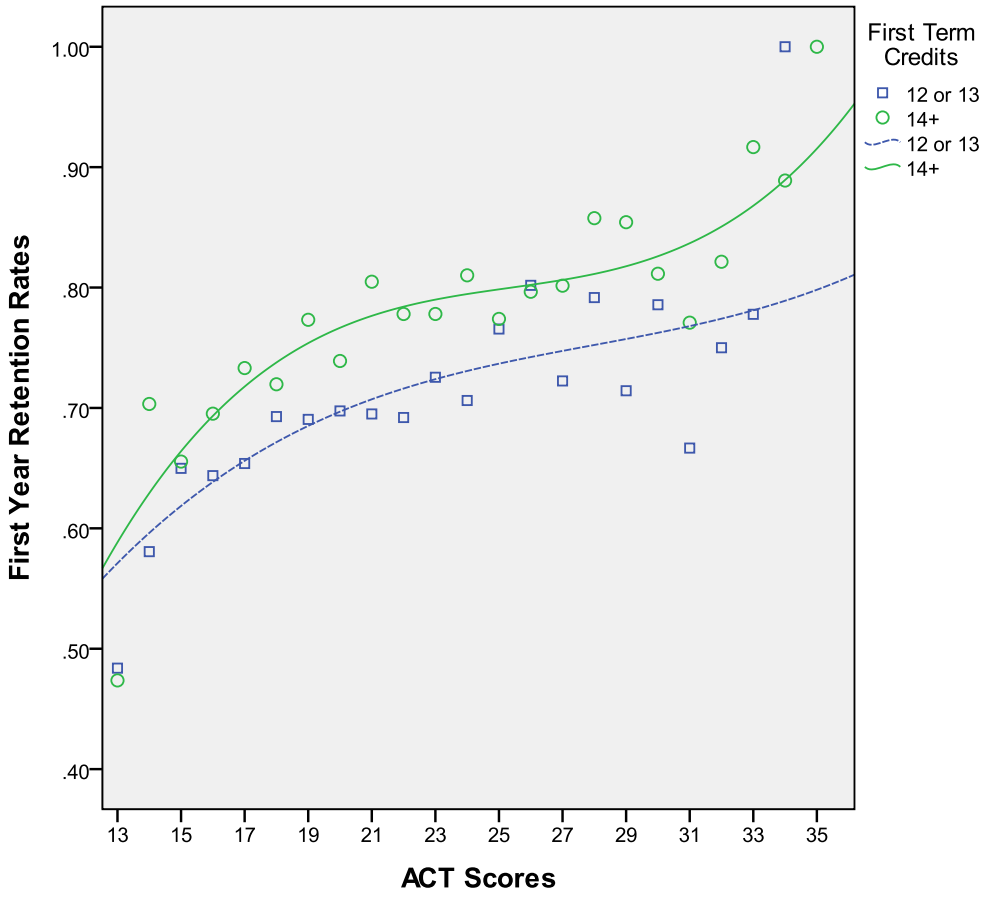
Methods and Results

OIRA used a logistic regression analysis to test whether or not the student outcomes of 16,760 FTIAC students were related to the number of credits that they took during their first semester. OIRA used a measure of incoming academic ability (ACT composite scores or high school GPAs) and the number of first-term credits a student took as predictor variables to estimate the relationship between these predictors and important student outcomes, like retention and graduation.

The analysis indicated that the number of credits students attempted during their first term was a significant factor in predicting first-year retention and eventual graduation. Students that took more credits had higher retention and graduation rates, even after controlling for incoming academic ability. Though most of the data presented in this document uses ACT scores as a reference, OIRA finds that the conclusions apply equally to high school GPAs as well as ACT scores.

Figure 1 (below) presents a graphical display of the relationship between first-term credits, ACT scores, and first-year retention rates.

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



In addition to the overall model, OIRA also ran separate models for each school and the college to determine if this observed relationship is moderated by the student's choice of academic career path.

Full-time students that took more credits had statistically significantly higher retention rates in every school and the College except for the School of Engineering and Computer Sciences (SECS). In SECS, the difference in retention was still positive, but the difference was not statistically significant. Again, these differences remained even after accounting for differences in ACT scores. A complete breakdown of the statistical results by school and college is available in the appendix.

For illustrative emphasis, Table 1 shows the first-year retention rate for students that took 12 or 13 credits during their first term and compares them to students that took 14 or

more. Notice that for every school and the college, retention rates are higher for students that take more credits.

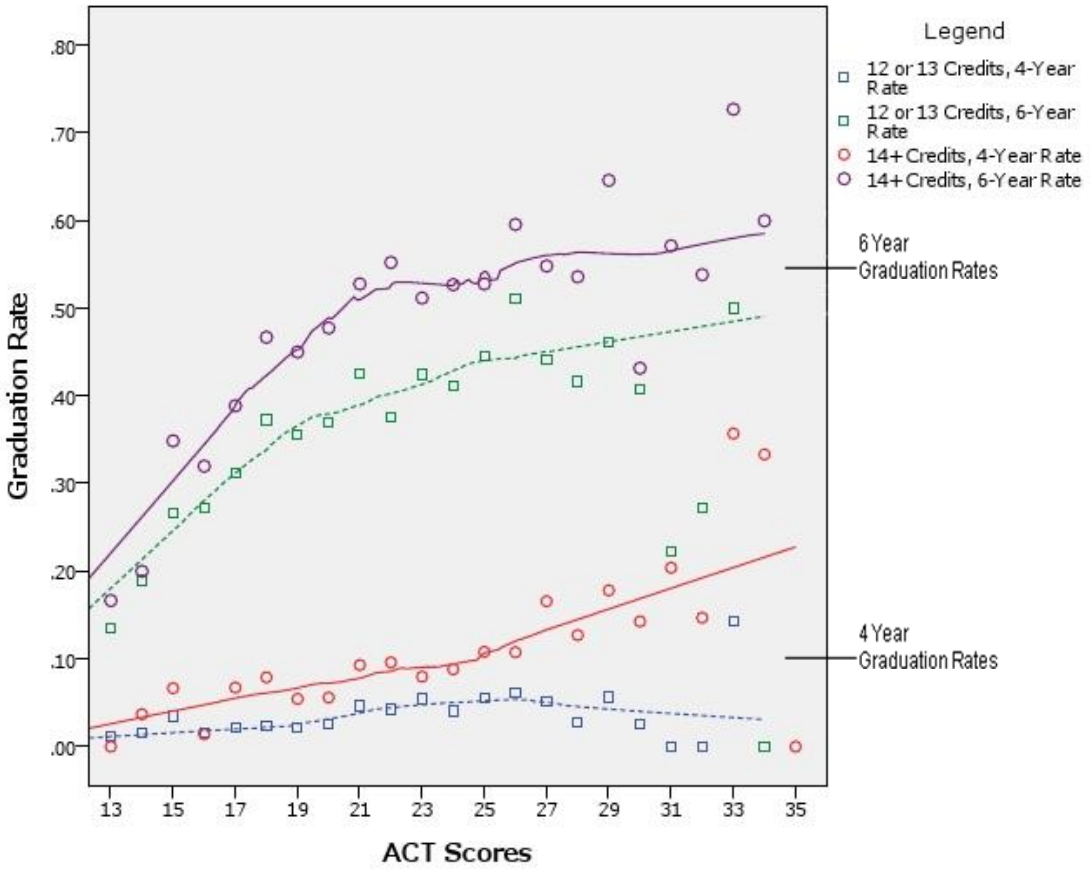
Table 1: First-Year Retention Rates by First-Term Credits

School/College	12 or 13 Credits	14+ Credits
CAS	67.7%	77.4%
SBA	66.9%	76.4%
SEHS	69.8%	82.2%
SECS	71.1%	76.6%
SHS	69.1%	80.6%
SON	61.9%	73.1%
UP	68.4%	74.4%

Not only are the number of credits that students take during their first semester related to their retention, but it is also related to graduation. Students that take more credits during their first term graduate at significantly higher rates, even after accounting for their ACT scores.

Figure 2 shows the relationship between first-term credits and graduation rates, using LOESS smoothing curves to describe four different groups of students. The solid curves (red and purple) show students that took 14 or more credits during their first term, while the dashed curves (green and blue) show students that took 12 or 13 credits during their first-term. The top half of the graph shows 6-year graduation rates while the bottom half shows 4-year graduation rates. No matter which scenario one examines, students that take more credits during their first term have higher graduation rates. Traditional significance testing shows that this relationship is highly statistically significant, for both 6-year and 4-year graduation rates.

Figure 2: Graduation Rates by ACT Score and First-Term Credits



OIRA also conducted separate regression estimates for each school and the college on six-year graduation rates. CAS, SBA, SECS, SEHS, SHS, and UP all have statistically significantly higher 6-year graduation rates for students that take more credits during their first term. The appendix contains a detailed breakdown of the statistical results by school and college[3].

For illustrative emphasis, Table 2 shows the six-year graduation rate for students that took 12 or 13 credits during their first term and compares them to students that took 14 or more. Notice that for every school and the college, graduation rates are higher for students that take more credits during their first-term.

[3] OIRA also ran the analysis using high school GPAs in place of ACT scores. The analysis using high school GPAs is nearly identical to the analysis using ACT scores.

Table 2: Six-Year Graduation Rates by First-Term Credits

School/College	12 or 13 Credits	14+ Credits
CAS	36.0%	48.8%
SBA	37.5%	46.2%
SEHS	39.8%	56.8%
SECS	33.7%	44.2%
SHS	40.8%	60.9%
SON	33.7%	49.4%
UP	37.9%	56.1%

Summary

The analysis presented here, along with a host of previous OIRA data, suggests a very strong relationship between student success and the number of credits that students take during their first-term. Students that take more credits during their first-term have significantly higher retention and graduation rates. Though the magnitude of this pattern changes slightly by incoming academic ability, the direction does not. Even for the lowest measures of incoming academic ability, students that take more credits their first term have higher graduation and retention rates.

Because these patterns are so strong and consistent, OIRA recommends that students should be encouraged to take 14 or more credits during their first semester, and they should be especially encouraged to achieve sophomore standing by the end of their first year.

Besides from being confirmed through statistical analysis, encouraging students to take more credits their first semester makes logical sense as well. Not only do students start off with a few more credits (which invariably helps them graduate sooner), but, if students are forming academic habits and adaptation techniques during their first semester (such as finding employment), it seems better practice to encourage students to adapt to a credit load that will allow them to graduate in a timely manner, as opposed to a path that greatly extends their time to graduation.

Appendix A: Additional Materials

Table 3: Logistic Regression Results, First-Year Retention Rates

	Regression Variable	B	Standard Error	Wald Statistic	P- Value	Exp(B)
CAS	ACT Score	0.05	0.01	36.28	<0.01	1.06
	First Term Credits	0.10	0.02	27.26	<0.01	1.10
	Interaction	0.00	0.00	0.35	0.55	1.00
	Constant	1.03	0.04	768.15	<0.01	2.81
SBA	ACT Score	0.04	0.02	7.20	0.01	1.04
	First Term Credits	0.11	0.03	12.91	<0.01	1.11
	Interaction	-0.01	0.01	0.41	0.52	0.99
	Constant	1.04	0.06	332.88	<0.01	2.83
SEHS	ACT Score	0.06	0.02	7.05	0.01	1.06
	First Term Credits	0.19	0.04	23.52	<0.01	1.21
	Interaction	0.03	0.01	7.12	0.01	1.03
	Constant	1.24	0.08	245.30	<0.01	3.44
SECS	ACT Score	0.05	0.02	10.85	<0.01	1.06
	First Term Credits	0.06	0.04	2.51	0.11	1.06
	Interaction	-0.01	0.01	1.04	0.31	0.99
	Constant	1.10	0.07	254.89	<0.01	3.02
SHS	ACT Score	0.10	0.02	22.33	<0.01	1.11
	First Term Credits	0.10	0.04	6.28	0.01	1.10
	Interaction	-0.01	0.01	0.21	0.64	0.99
	Constant	1.18	0.08	230.86	<0.01	3.26
SON	ACT Score	0.12	0.02	44.47	<0.01	1.13
	First Term Credits	0.08	0.04	4.57	0.03	1.08
	Interaction	0.00	0.01	0.21	0.65	1.00
	Constant	0.94	0.07	169.19	<0.01	2.56
UP	ACT Score	0.02	0.01	3.32	0.07	1.02
	First Term Credits	0.07	0.02	9.86	<0.01	1.07
	Interaction	0.00	0.01	0.10	0.75	1.00
	Constant	0.95	0.04	451.51	<0.01	2.58

Table 4: Logistic Regression Results, 6-Year Graduation Rates

	Regression Variable	B	Standard Error	Wald Statistic	P- Value	Exp(B)
CAS	ACT Score	0.06	0.02	13.66	<0.01	1.06
	First Term Credits	0.11	0.04	9.12	<0.01	1.12
	Interaction	0.01	0.01	0.99	0.32	1.01
	Constant	-0.28	0.07	16.35	<0.01	0.75
SBA	ACT Score	0.02	0.03	0.29	0.59	1.02
	First Term Credits	0.11	0.05	3.99	0.05	1.11
	Interaction	0.00	0.02	0.01	0.91	1.00
	Constant	-0.27	0.11	6.25	0.01	0.76
SEHS	ACT Score	0.06	0.03	3.12	0.08	1.06
	First Term Credits	0.13	0.06	4.72	0.03	1.14
	Interaction	0.00	0.02	0.00	0.97	1.00
	Constant	0.00	0.12	0.00	0.98	1.00
SECS	ACT Score	0.11	0.03	16.42	<0.01	1.11
	First Term Credits	0.11	0.05	4.30	0.04	1.12
	Interaction	-0.02	0.01	2.74	0.10	0.98
	Constant	-0.49	0.10	23.67	<0.01	0.61
SHS	ACT Score	0.07	0.05	2.12	0.15	1.08
	First Term Credits	0.27	0.11	5.96	0.01	1.30
	Interaction	0.01	0.03	0.26	0.61	1.02
	Constant	0.13	0.20	0.41	0.52	1.14
SON	ACT Score	0.27	0.06	20.52	<0.01	1.31
	First Term Credits	0.02	0.10	0.06	0.81	1.02
	Interaction	-0.01	0.03	0.09	0.76	0.99
	Constant	0.12	0.20	0.40	0.53	1.13
UP	ACT Score	0.03	0.02	2.43	0.12	1.03
	First Term Credits	0.16	0.04	13.64	<0.01	1.17
	Interaction	0.00	0.01	0.03	0.86	1.00
	Constant	-0.09	0.08	1.06	0.30	0.92