IS THERE SUCH A THING AS TOO MUCH OF A GOOD THING WHEN IT COMES TO EDUCATION?

REEXAMINING FIRST GENERATION STUDENT SUCCESS

Dr. Mary Lou D'Allegro, Senior Director

Stefanie Kerns, Statistical/Data Analyst

The Pennsylvania State University – Berks College

Planning, Research & Assessment

PENNSTATE Berks 1855 Planning, Research and Assessment

Abstract

- Relationships between parents' educational level and some first year success indicators are not linear.
- Students grouped by five parent education levels are assessed by
  - Mathematics SAT
  - Critical Reading SAT
  - Placement tests
  - First semester credits attempted and credits earned
  - First semester GPA
  - One-year retention

Abstract (cont.)

- Analysis
  - variable construction
  - definition of first generation students
  - exploratory analyses
  - inferential statistics
  - predictive models
  - ordinary least squares
  - logistic and regression techniques, limits, and appropriateness of these techniques are investigated

Introduction

- Evidence suggests first generation students are not as successful as non-first generation students
- Discerning between the different levels of parent education
- Institution selectivity

Background

- Penn State Berks is a public college campus of The Pennsylvania State University
- Berks is 1of 5 PSU college campuses that confers both associate and baccalaureate degrees
- 2000 Carnegie Classification: Baccalaureate-Arts & Sciences

Background

- Fall 2007 overall enrollment – 2,824
- Fall 2007 new baccalaureate degree-seeking freshmen – 850
- 20% of Berks students are STEM majors
- 5 year average combined SAT – 1,003

Research Questions

- Is the success of first generation students different from non-first generation students at less selective institutions with respect to pre-college, college, and student success indicators?

- What is the relationship between student success and parent level of education?

- Do students who have not reported the educational level of their parents or guardians fare as well as those students who do identify parent education level?

Data Collection

- Information was collected using Penn State's Data Warehouse
- New baccalaureate degree-seeking students enrolled at Penn State Berks for fall semesters between 2000 and 2006
- Three types of independent variables
  - student demographic information
  - pre-college data
  - college variables

Data Collection

- First Generation Defined
  - Neither parent or guardian of an enrolled student has obtained a Bachelor's degree

Data Collection (cont.)

- Dependant Variables
  - first semester GPA
  - first semester credits attempted
  - first semester credits earned
  - one-year retention

Results

Proportion of Students by Parent Education Level

Variable	N	Percent
High School or Less	1,246	23.6%
Some College	1,278	24.2%
Baccalaureate Degree	1,126	21.3%
Beyond Baccalaureate Degree	1,327	25.1%
Missing	304	5.8%
Total	5,281	100.0%

Demographics

	1st Generation		Non-1st Generation	
Variable	**N**	**Percent**	**N**	**Percent**
Male	1,460	57.8%	1,535	62.6%
Female	1,064	42.2%	918	37.4%
Native American	0	0.0%	1	0.1%
African-American	178	7.1%	88	3.6%
Asian	119	4.7%	11	0.4%
Hispanic	94	3.7%	42	1.7%
Caucasian	2,000	79.2%	2,069	84.3%
Non-Resident Alien	18	0.7%	11	0.4%
Missing	115	4.6%	126	5.1%

Pre-College Variables

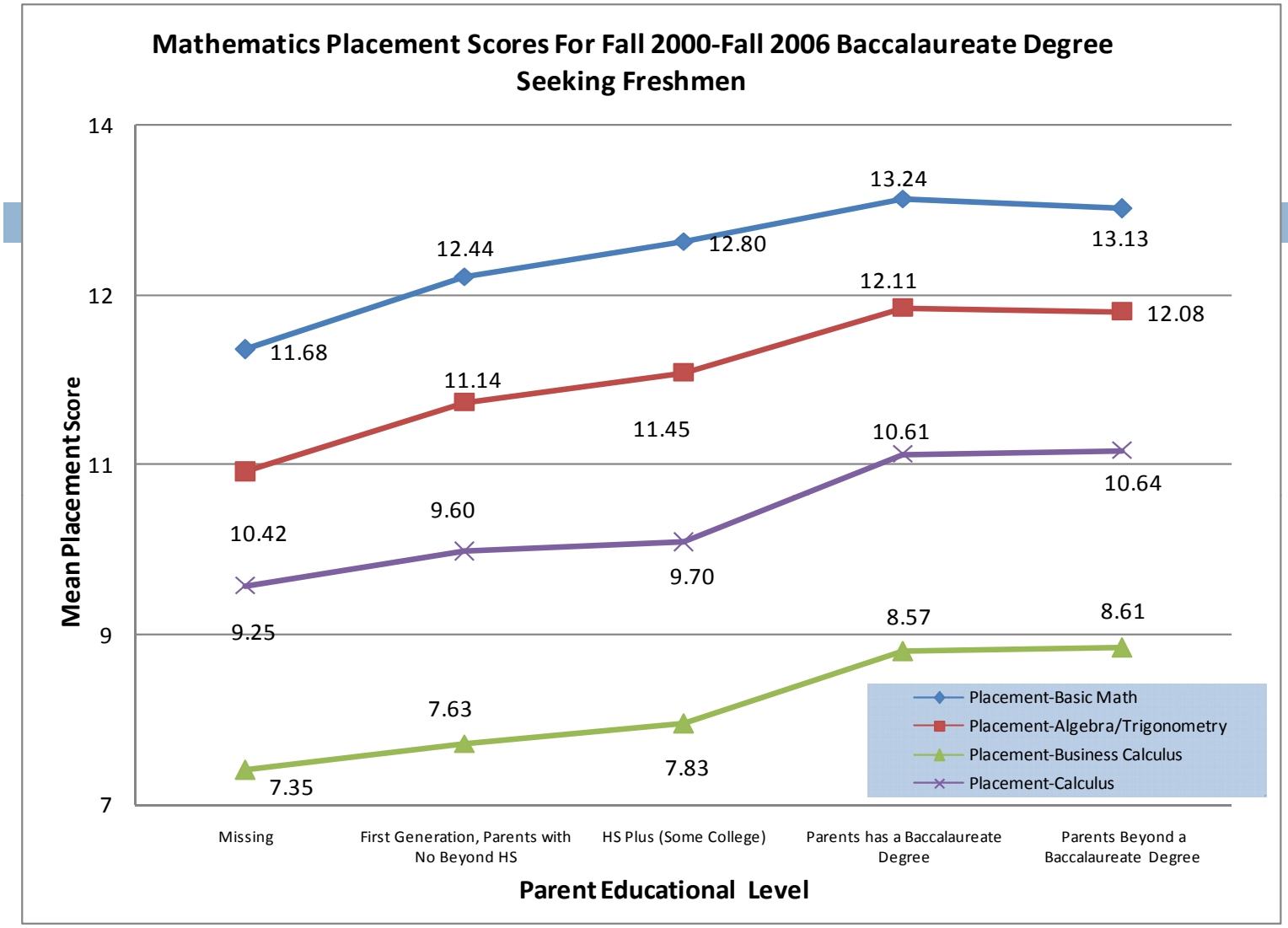
	1st Generation		Non-1st Generation	
Variable	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**
SAT				
Mathematics	502.10	87.24	521.84	83.57
Critical Reading	486.10	79.51	508.33	75.80
PLACEMENT TESTS				
Vocabulary	8.29	3.84	9.37	4.06
Spelling	4.56	2.62	4.90	2.67
Grammar	3.31	2.04	3.58	2.13
Punctuation	5.90	2.78	6.39	2.72
Basic Math	12.62	3.22	13.18	2.81
Algebra/Trig	11.30	4.05	12.10	3.90
Business Calculus	7.73	5.41	8.59	5.74
Calculus	9.65	5.96	10.63	6.41

Enrollment in Majors

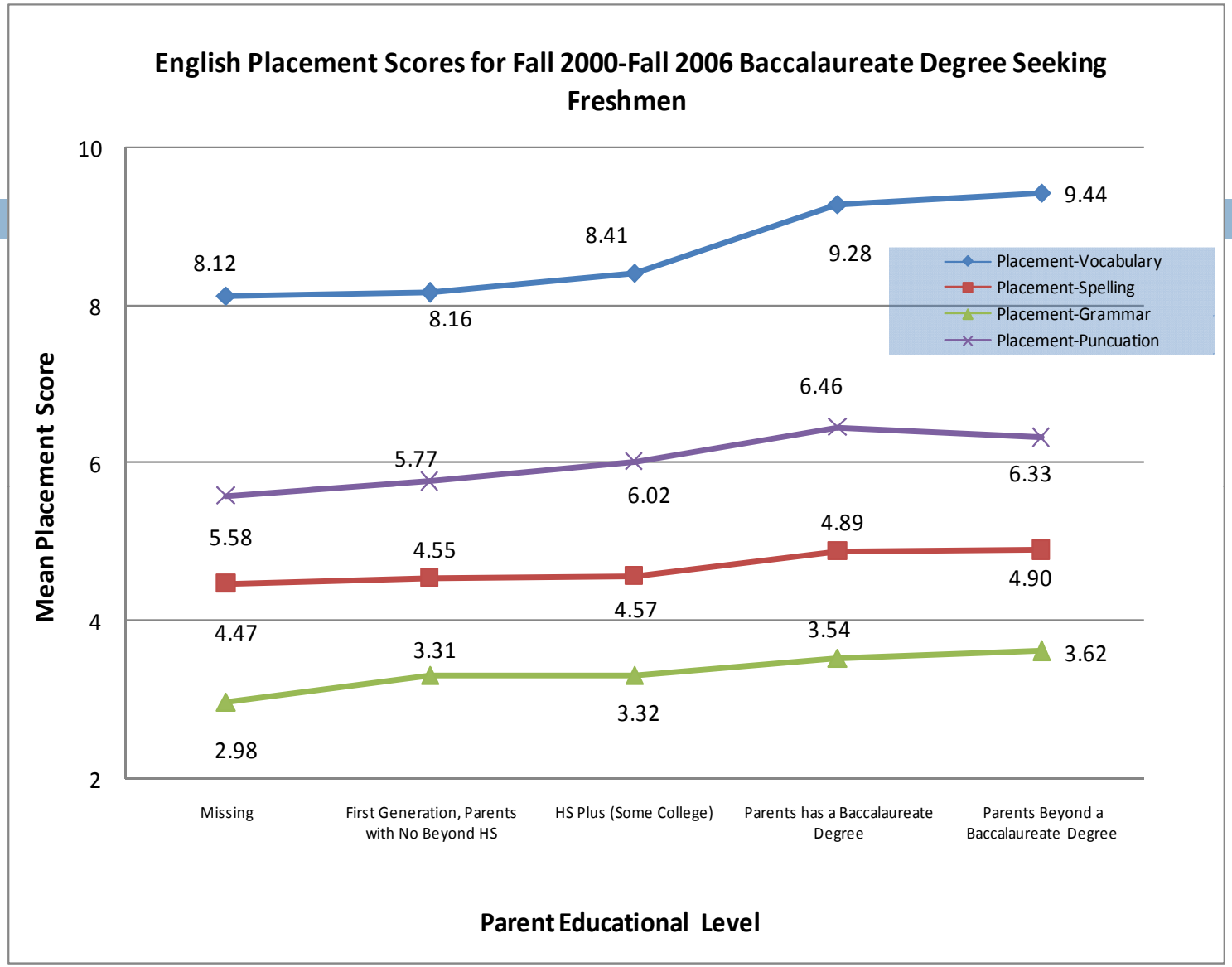
	1st Generation		Non-1st Generation	
Variable	**N**	**Percent**	**N**	**Percent**
Has a Major (1st Sem)				
Yes	1,860	73.7%	1,770	72.2%
No	664	26.3%	683	27.8%
TOTAL	2,524	100.0%	2,453	100.0%
Is a STEM Major (1st Sem)				
Yes	757	30.0%	748	30.5%
No	1,767	70.0%	1,705	69.5%
TOTAL	2,524	100.0%	2,453	100.0%

College Variables

	1st Generation		Non-1st Generation	
Variable	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**
FIRST SEMESTER				
Credits Attempted	14.49	1.99	14.64	2.11
Credits Earned	14.02	3.19	14.42	2.70
GPA	2.56	0.98	2.69	0.91



* Independent t-tests between first generation and non-first generation students was significant $p \leq .001$



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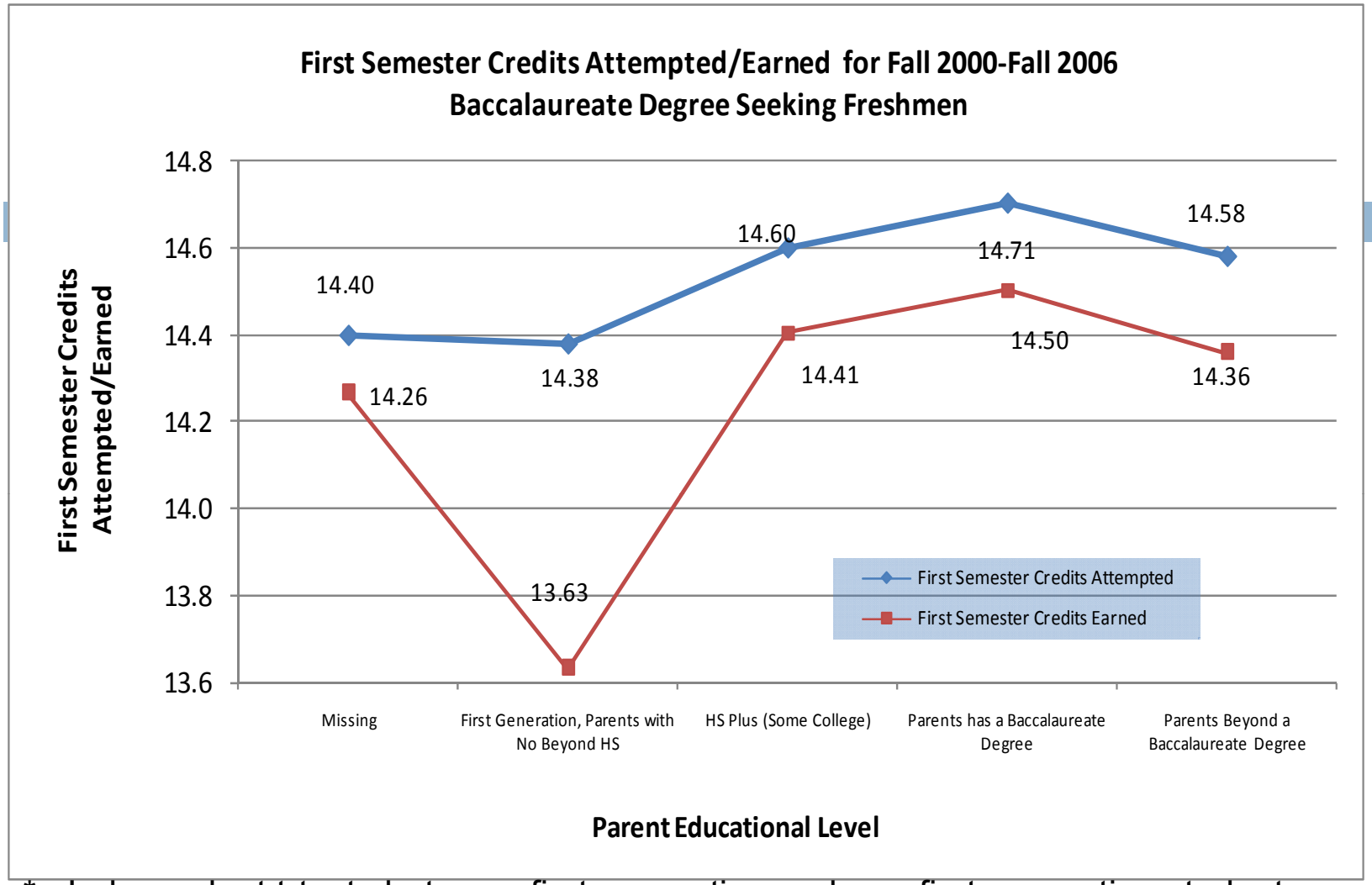
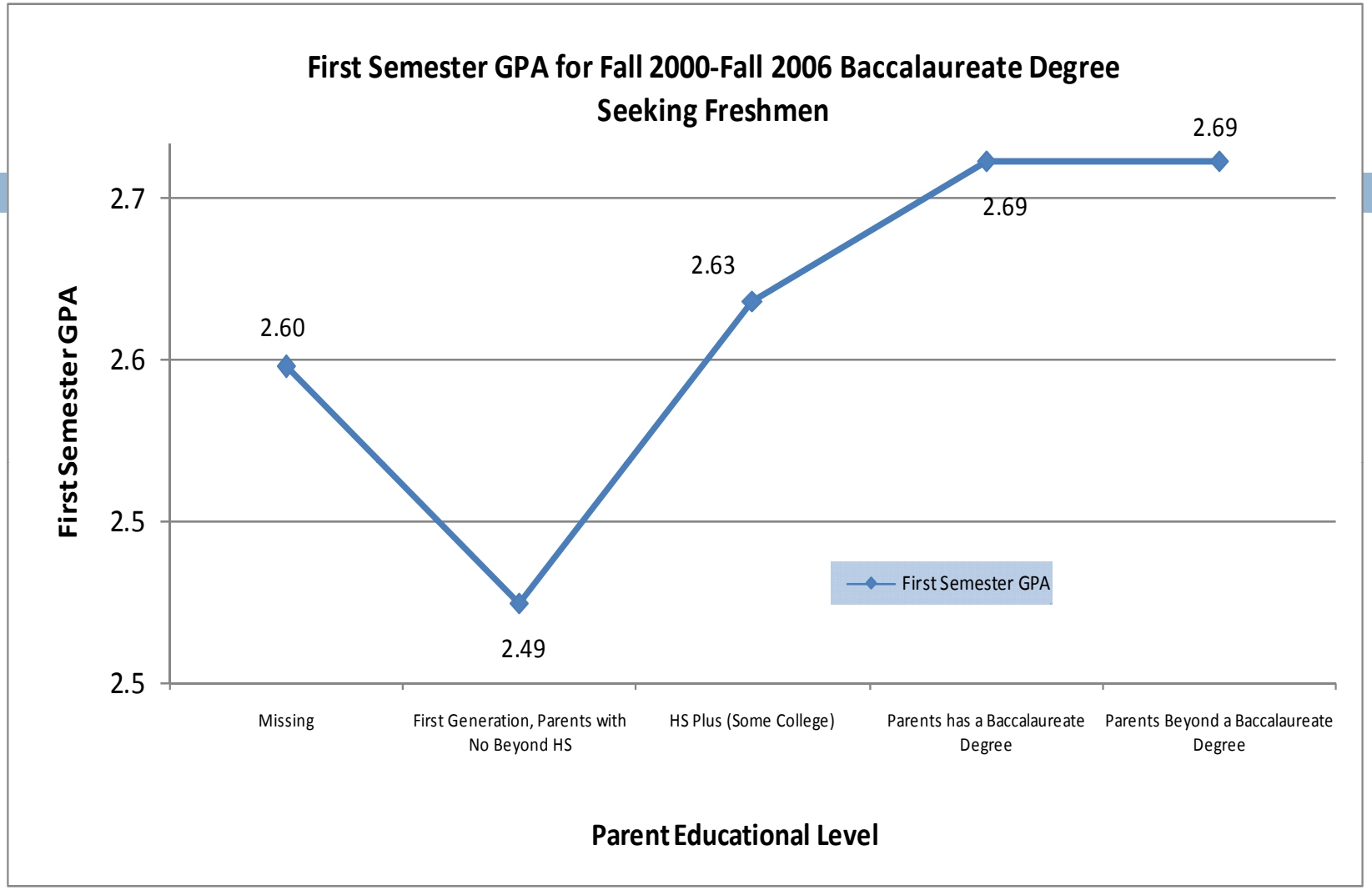


* Independent t-tests between first generation and non-first generation students credits attempted was significant $p \leq .01$

** Independent t-tests between first generation and non-first generation students credits earned was significant $p \leq .001$



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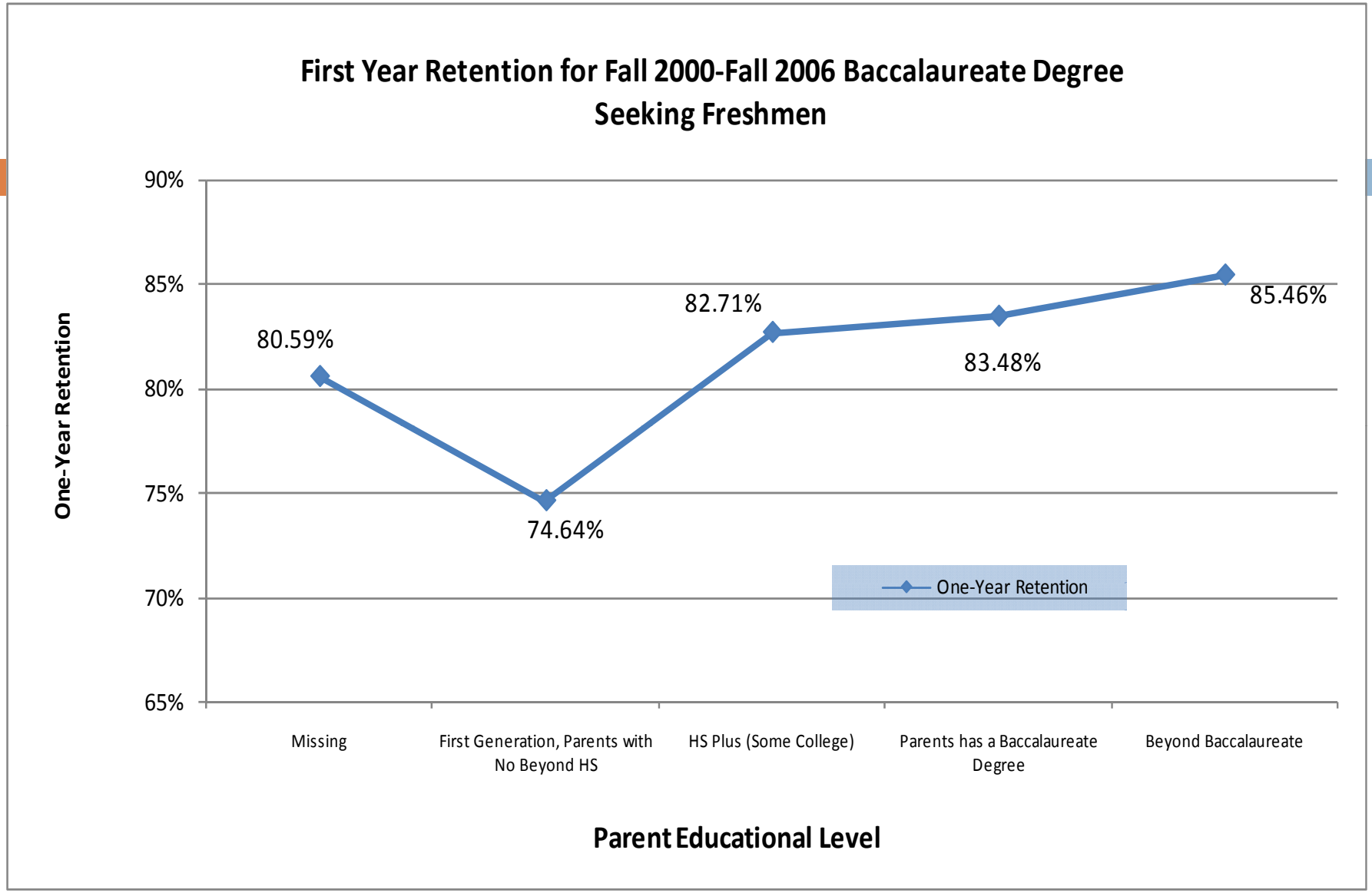
First Year Retention for Fall 2000-Fall 2006 Baccalaureate Degree Seeking Freshmen
One-Year Retention
90%
85%
80%
75%
70%
65%
80.59%
74.64%
82.71%
83.48%
85.46%
One-Year Retention
Missing
First Generation, Parents with No Beyond HS
HS Plus (Some College)
Parents has a Baccalaureate Degree
Beyond Baccalaureate
Parent Educational Level

Limitations

I. Generalizability
   - Small Campus
   - Less Selective

II. Variables
   - Only looked at first semester variables, first year may yield better results
   - Financial Aid information was not included
   - Placement Testing
   - PSU uses their own testing methods, not able to compare to other institutions

Recommendations

- Intervention at Middle School / High School Level
- Further study of missing information
- Continue to develop & deliver special services to first generation students
  - Information on college expectations
  - Financial aid information

Summary

- Reinforces previous research: Non-1st generation students outperform 1st generation students
- 1st generation students also perform more poorly on pre-college variables
- Students who do not report parent education level do not fare as well - important group to focus future research on

Use on Campus

- Share results with college's Retention Council
- Use results in Summer Bridge program planning
- ACT 101 planning
  - Large number of 1st generation students in program
- Intervention at High School level
  - NSF grant, Elementary Education

QUESTIONS / COMMENTS