

**Factors Associated With  
African-American Freshmen  
Retention  
and Graduation at a  
Predominantly White  
University**

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# **OVERVIEW**

**Introduction**

**Methodology**

**Results**

**Limitations/Implications/Recommendations**

# *INTRODUCTION*

# BACKGROUND

National studies have shown that African-American students are retained and graduate at lower rates than the overall student population.

People 25 or older receiving college degrees

- 16% of African Americans
- 28% of entire population

(US Census Bureau, Educational Attainment in the United States: 2007)

# Important Variables

High school GPA

ACT and/or SAT

Intercollegiate athletics

High school demographics (race & SES)

High school locale

# Owens preliminary study

- Study of lottery scholarship retention (by high school)
- Racial demographics
  - Pred. AA school neg. w/ lottery scholarship
- Socio-economics
  - Pred. Econ. Dis. school neg. w/ lottery scholarship
- High School locale impactful
  - City (urban) schools neg. w/ lottery scholarship (more minorities in these schools)
  - Pred. minority in non-city locales better
    - Pred. minority rural schools best

# PROBLEM STATEMENT

African-American students attending four year colleges and universities lag behind the general population of students in terms of retention and graduation.

# SIGNIFICANCE OF THE STUDY

1. With this study, there is the potential to understand better how to help these students graduate from college.
2. Better preparation for our workforce (increase in diversity)
3. If students do not persist, they cannot earn a degree
4. Education increases earning potential – impacts the black community and society in general

# Research questions #1 & #2

- What combination of the following variables best predicts student retention?  
Graduation?
  - high school grade point average (HSGPA)
  - ACT composite score
  - gender
  - race
  - whether or not the student participated in intercollegiate athletics at the university
  - the locale (city, suburban, town, or rural) of the high school from which the student graduated
  - the percentage of African-American students in the high school from which the student graduated
  - the percentage of economically disadvantaged students in the school

# Research questions #3 & #4

- What combination of the same variables best predicts African-American student retention?  
Graduation?

# Research question #5 & #6

- Is there a difference between AA students and non-AA students in regards to the predictive ability of these variables regarding first year retention?  
Graduation?

# METHODOLOGY

# Methodology

## Setting Statistics

Average undergrad. pop. '97-'98 through '06-'07	Average % African-Amer. '97-'98 through '06-'07	Average % African-Amer. in city '05 through '07
6,456	5.1% (329)	2.6%

<http://www.tntech.edu/ir/>

# Sample/population

- 9,160 first-time freshmen at the university (fall '97 through fall '06)
- African-American – 5.6% (516)

## Procedures

- Data sources - the university's Information Technology Services, the Tennessee Department of Education Report Card website, and the National Center for Education Statistics (NCES) Common Core of Data

## Measurement and Instrumentation

- The Statistical Package for the Social Sciences (SPSS) version 14

# Methodology

## Data Analysis/Statistical Procedures

- Binary logistic regression (Backward LR method)
- Six analyses
  - 3 for retention
  - 3 for graduation

# Correlations

## Multicollinearity in Full Sample

- Relationship between % Econ. Dis. & Suburban Locale ( $r = -.434$ )
- Relationship between % Econ. Dis. & Rural Locale ( $r = .307$ )
- Relationship between AA students and % AA students in high school ( $r = .439$ )

# Correlations

## Multicollinearity in African-American Sample

- Relationship between % AA students & City Locale ( $r = .474$ )
- Relationship between % AA students & % Econ. Dis. ( $r = .735$ )

# 1<sup>st</sup> Year Retention

## Analysis of All Students

### Model Characteristics

- Nagelkerke = .114
- 69.1% of cases classified correctly

Individual Predictors		
	<u>Wald</u>	<u>odds ratio</u>
HSGPA	658.403	2.970
% Econ. Dis.	38.980	.991
Athlete Status	19.668	.639
City Locale	17.469	1.408
Town Locale	13.958	1.212
Race	6.284	1.488
AA w/ %AA	3.997	.993

# 1<sup>st</sup> Year Retention

## Analysis of African-American Students

### Model Characteristics

- $\chi^2=36.646$ ,  $p < .001$
- Nagelkerke = .095
- 65.9% of cases classified correctly

Individual Predictors		
	<u>Wald</u>	<u>odds ratio</u>
HSGPA	21.314	2.461
% Econ. Dis.	14.284	.984

# 1<sup>st</sup> Year Retention

## Analysis of Non-African-American Students

### Model Characteristics

- Nagelkerke = .115
- 69.3% of cases classified correctly

Individual Predictors		
	<u>Wald</u>	<u>odds ratio</u>
HSGPA	635.720	2.993
% Econ. Dis.	33.705	.991
City Locale	17.522	1.443
Athlete Status	15.371	.635
Town Locale	14.966	1.225

# 6 Year Graduation

## Analysis of All Students

### Model Characteristics

- Nagelkerke = .208
- 68.1% of cases classified correctly

Individual Predictors		
	<u>Wald</u>	<u>odds ratio</u>
HSGPA	374.078	4.275
% Econ. Dis.	36.003	.985
Athlete Status	6.573	.658
Gender	4.253	1.187

# 6 Year Graduation

## Analysis of African-American Students

### Model Characteristics

- Nagelkerke = .149
- 73.3% of cases classified correctly

Individual Predictors		
	<u>Wald</u>	<u>odds ratio</u>
HSGPA	14.679	4.029

# 6 Year Graduation

## Analysis of Non-African-American Students

### Model Characteristics

- Nagelkerke = .206
- 68.1% of cases classified correctly

Individual Predictors		
	<u>Wald</u>	<u>odds ratio</u>
HSGPA	363.304	4.314
% Econ. Dis.	34.478	.985
Athlete Status	6.509	.621

# Limitations

- Generalizeability
- Sample sizes
- Earliest info. from over a decade ago
- Logistic regression has no “real” variance measure

# Implications & Recommendations

- Retention - HSGPA & % Econ. Dis. only predictors
- Graduation – HSGPA only predictor
- Held in common w/ non-AA student predictors
  
- Qualitative study should be conducted
- Programming funding from all levels (inclusive of all but focused on AA students)

*Questions???*