

# An Analysis of the Factors Influencing Revenue Production in College Athletics

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# Introduction

- Division I athletic budgets (Padilla & Baumer, 1994)
  - 1970's = \$1 million per year
  - 1990's = \$15-\$20 million per year
- Football Bowl Subdivision (DeSchrive, 2009)
  - 1996-2006
    - Improved revenues by approximately \$18 million, an increase of more than 115% per institution
    - Large growth in revenues was met equally with large increases in expenses
- Current Division I athletic budgets (EADA, 2010)
  - 2008
    - Revenues were over \$45 million
    - Expenses were over \$43 million

# Review of Literature

- Factors that influence revenue generation
  - Adequate in professional sport
    - Brown, Nagel, McEvoy, & Rascher, 2004
    - O'Reilly & Nadeau, 2006
  - Limited in collegiate athletics
    - McEvoy, 2005
    - Mondello, 1999 (Dissertation)

# Review of Literature

- Brown, Nagel, McEvoy, & Rascher, 2004
  - Impact of stadia on revenue and wealth maximization in the National Football League (NFL) from 1995-1999
    - Significant difference in pre-stadium opening revenue and post-stadium opening revenue
    - Significant increase in gross operating revenues in the NFL
      - Largest percentage increase generated by loge boxes
- O'Reilly & Nadeau, 2006
  - Studied the strongest relationship to total team revenue
    - Market support, competition and heritage

# Review of Literature

- McEvoy, 2005
  - Model predicting annual fund raising contributions to NCAA Division I-A athletic programs
  - Five significant variables
    - Football home attendance, conference affiliation, football winning percentage, type of institution, and men's basketball home attendance - of these, football attendance and conference affiliation were the strongest predictors

# Review of Literature

- Mondello, 1999
  - Focused specifically on predictors of fiscal solvency within Division I athletic programs
  - Examined the influence of twenty-three predictor variables on total annual profit
  - Results showed that revenue sport profits and recruiting expenses significantly influenced total annual profits
  - However, only one performance factor was examined
    - Attendance at revenue generating sports, university location, and population/income within the local area were not accounted for

# Purpose of the Study

- Examine the factors that influence total revenue in college athletic departments
- Additional variables added to the model:
  - Attendance at revenue generating sports
  - University location
  - Population/income within the local area

# Methods

- Subjects and Data
  - All NCAA Division I-Football Bowl Subdivision members
  - Five years of data: 2002-03 through 2006-07
  - Data collected from the Equity in Athletics Disclosure Act (EADA) database and various secondary sources

# Methods

- Statistical Model
  - Demand model created using multiple linear regression in order to predict NCAA Division I-FBS schools' total annual athletics revenues

# Methods

- Dependent Variable = Institutions' total annual athletics revenue
- Independent Variables: (40 total)
  - Football and men's basketball history variables
  - Current year football & men's basketball performance
  - Previous year football & men's basketball performance
  - Number of varsity sports
  - Number of student-athletes
  - Operating expenses
  - Recruiting expenses
  - Athletic scholarship expenses
  - Total athletic expenses

# Methods

- Independent Variables: (continued)
  - Average head coach salary – male & female
  - Average assistant coach salary – male & female
  - Five dummy variables to account for year-by-year panel data
  - Conference affiliation variables – BCS/non-BCS & conference dummies
  - Geographic location dummy variables by region
  - University enrollment
  - University type – public vs. private
  - Population
  - Per capita income

# Results

- Descriptive Statistics
  - Mean total annual athletics revenue was \$39.5 million with a standard deviation of \$23.3 million
  - Degree of variability not surprising given the diverse mix of schools in Division I-FBS
    - Ex. Ohio State versus Ohio U. – one has revenues around \$10-12 million...the other is ten times that



# Results

- Regression Results

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-1.521E+07	9205163.902		-1.652	.099
YEAR04	39004.101	1528912.335	.001	.026	.980
YEAR05	1832593.934	1553142.052	.031	1.180	.239
YEAR06	2776127.636	1696492.771	.048	1.636	.102
YEAR07	2562445.556	1706724.318	.044	1.501	.134
BBHISNCA	-91444.435	251933.951	-.012	-.363	.717
BBHISNIT	-978370.787	371381.429	-.063	-2.634	.009
BBCYNCAA	1199025.323	1733525.783	.025	.692	.489
BBCYNIT	-1164871.713	1533808.405	-.019	-.759	.448
ENROLL	8.818	65.739	.004	.134	.893
SPORTS	-13912.104	229661.712	-.003	-.061	.952
ATHLETES	17515.180	5777.810	.119	3.031	.003
OPEREXP	1.729	.291	.207	5.946	.000
RECRUEXP	15.865	2.333	.239	6.801	.000
SCHOLAR	1.304	.376	.145	3.470	.001
AVGHCMAL	13.182	4.913	.105	2.683	.008
AVGHCFEM	16.860	22.871	.039	.737	.461
AVGACMAL	-14.869	19.437	-.057	-.765	.445
AVGACFEM	3.469	57.504	.005	.060	.952

$F(33,528) = 56.48$

$p = <.001$

$R^2 = .779$

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# Results

- Regression Results (continued)

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
CONFBCS	932640.747	1785669.627	.020	.522	.602
LOCATION	-396861.548	557960.017	-.018	-.711	.477
TZCENT	2473661.516	1156575.903	.050	2.139	.033
TZMOUNT	853781.402	1974517.492	.011	.432	.666
FBATTEN	254.884	42.539	.283	5.992	.000
BBATTEN	259.994	174.041	.054	1.494	.136
FBCYBOWL	-1049344.592	1504993.997	-.023	-.697	.486
SCHTYPE	-1626041.925	1869430.375	-.023	-.870	.385
FBWINCUR	2655593.786	3735143.650	.025	.711	.477
FBWINPRE	650103.432	2984255.309	.006	.218	.828
BBWINCUR	-4201985.480	3665894.227	-.030	-1.146	.252
BBWINPRE	6759435.182	4640810.929	.048	1.457	.146
FBHISTORY	-222042.631	262889.685	-.031	-.845	.399
POPULATE	.499	1.195	.010	.418	.676
INCOME	58.164	101.713	.014	.572	.568

$$F(33,528) = 56.48$$

$$p = <.001$$

$$R^2 = .779$$

# Discussion

- Primary Predictor Variables
  - Football Attendance
    - Consistent with McEvoy (2005)
  - Recruiting & Operating Expenses
    - Recruiting expenses consistent with Mondello (1999)
  - Number of Student-Athletes & Scholarships
- The majority of the significant predictor variables were expense-related variables

# Discussion

- Chicken or the Egg???
  - There are two ways of looking at the current findings
1. The programs that generate the largest revenue are more likely to spend this money on recruiting, general operations, and student-athletes; thus, increasing future revenue

# Discussion

## Chicken or the Egg???

- Example

<u>2007</u>	<u>University of Texas</u>	<u>Ohio State University</u>
Total Revenue	\$120,288,370	\$117,953,712
Total Expenses	\$100,982,596	\$98,981,205

- According to Fulks (2009), only 25 athletic departments made a profit (7.6%) in 2008.
  - Not counting institutional support

# Discussion

2. Programs invest in recruiting, general operations, and student-athletes which increases revenue
  - The majority of the schools are in debt with the hope that spending “wisely” will increase revenue and establish profitability over time
    - Examples
      - Boise State increased expenses approx. \$6.7 million from 2004-2006, profit almost tripled to \$168,000 in 2006
      - Univ. of South Florida increased expenses approx. \$8.2 million from 2005-2007, profit almost tripled to \$2.1 million in 2007

# Discussion

- The current model is not intended to answer the “chicken or the egg” question
- The model provides an explanation of the variables that have the strongest influence on revenue generation
  - Example: Recruiting was the strongest expense-related predictor variable

# Discussion

## Practical Application

- Resource Allocation
  - Administrators tend to focus on factors beyond their direct control (performance related variables, geography, conference affiliation)
    - These variables were not found to be significant predictors of revenue generation
  - Proper resource allocation (recruiting, operations, marketing, etc.) has a strong influence on revenue generation and is within the control of administration

# Discussion

- Practical Application
  - Athletic departments can use this model to compare predicted versus actual revenue

ACC Program	2007 Predicted Revenue	2007 Actual Revenue	Difference
Boston College	\$62,218,887	\$61,203,340	-\$1,015,538
Clemson	\$63,662,216	\$59,126,212	-\$4,536,004
<b>Duke</b>	<b>\$58,299,972</b>	<b>\$67,820,335</b>	<b>\$9,520,363</b>
<b>Florida State</b>	<b>\$59,079,144</b>	<b>\$45,414,953</b>	<b>-\$13,664,191</b>
Georgia Tech	\$39,635,165	\$47,126,247	\$7,491,082
NC State	\$36,806,508	\$44,553,795	\$7,747,287
Maryland	\$61,116,352	\$54,171,741	-\$6,944,611
Miami	\$39,867,405	\$46,849,990	\$6,982,585
North Carolina	\$62,104,120	\$61,263,269	-\$840,851
Virginia	\$75,395,144	\$65,400,485	-\$9,994,659
Virginia Tech	\$56,344,018	\$56,029,172	-\$314,846
Wake Forest	\$37,287,156	\$39,961,624	\$2,674,468

# References

- Brown, M.T., Nagel, M. McEvoy, C.D., & Rascher, D.A. (2004). Revenue and wealth maximization in the National Football League: The impact of stadia. *Sport Marketing Quarterly*, 13(4), 227-235.
- DeSchrive, T. (2009). Recession emerges as formidable foe for college sports: Athletic departments make winning decisions and lose out in the downturn. *Phi Kappa Phi FORUM*, p. 14-16.
- Fulks, D.L. (2009). *2004-2008 NCAA revenue and expenses of Division I intercollegiate athletic programs report*. Indianapolis, IN: National Collegiate Athletic Association.
- McEvoy, C. (2005). Predicting fund raising revenues in NCAA Division I-A intercollegiate athletics. *The Sport Journal*, 8(1). Retrieved April 5, 2010 from <http://www.thesportjournal.org/article/predicting-fund-raising-revenues-ncaa-division-i-intercollegiate-athletics>
- Mondello, M.J. (1999). A financial analysis of Division I-A athletic programs. Ph.D. dissertation, University of Florida, United States – Florida. Retrieved January 7, 2010, from Dissertations & Theses: Full Text.(Publication No. AAT 9935263).
- O'Reilly, N.J., & Nadeau, J.P. (2006). Revenue generation in professional sport: A diagnostic analysis. *International Journal of Sport Management and Marketing*, 1(4), 311-330.
- Padilla, A. & Baumer, D. (1994). Big-time college sport sports: Management and economics issues. *Journal of Sport & Social Issues*, 18 (2), 123-143.