

BIG TIME ENDOWMENTS

Jonathan Willner, Oklahoma City University

ABSTRACT

The money associated with “big time” college sports, i.e. football and men’s basketball, has grown enormously over the last several decades. Unfortunately for many universities this growth has not been an unambiguous benefit. It is clear that while gross revenues in big time sports may have increased the net financial effect on individual athletic departments has been almost universally negative. To counter the suggestion of loss making by big time sports, supporters have put forth the idea that big time sports attract donations to the institution thus providing a net positive financial effect. Previous investigations of the endowment effect of big time sports tended to be narrowly focused, using the case study approach. The results tended not to support the link between big time sports and general endowment though some positive relationships did emerge. With the advent of the Bowl Championship Series (BCS, henceforth) an accepted measure of long-term college football team performance was created – the Billingsley Rankings. If there is a positive correlation between winning football and general endowments it seems reasonable that Notre Dame would have a larger endowment than Utah State University. Obviously there are other considerations to take into account in explaining the size of a school’s endowment. This paper examines the relationship between the historic quality of a university’s football team and the size of school’s general endowment. Both the gross size of the endowment and endowment per student are considered.

INTRODUCTION

The money associated with “big time” college sports, i.e. football and men’s basketball, has grown enormously over the last several decades. Television contracts, sneaker contracts, endorsements and coaches’ pre and post game shows are visible revenue streams for these sports or their participants. Unfortunately for many universities this growth has not had an unambiguously positive effect. While gross revenues in big time sports have increased the net financial effect on individual universities has been, at best, neutral.

Anecdotes, such as “It Pays to Win” (2002), which examines recent performance of the University of South Carolina’s football program, show positive economic results over a fixed term for a given area. “It Pays to Win” and similar studies do an excellent job in pointing out the extremes of a distribution and systematically ignore opportunity cost. They also suffer from the reporting and data collection problems typical of athletic consulting projections as delineated in Noll & Zimbalist (1997) and Siegfried and Zimbalist (2000). As one Nobel Laureate pointed out, “In a country the size of the United States you can find an example of everything.” More systematic studies of regional effects of professional sports do not support any positive economic impact.

Extensive work suggests that the direct net financial effect of football on a university's finances is on average negative. Even such vaunted programs as the University of Michigan's run deficits. Duderstadt (2000, p. 128) points out that in the 1998-99 fiscal year the athletic department had a \$2.8 million dollar deficit. Sheehan (1996, p 266) shows that many football programs actually lose money annually, though some make large profits. He also shows that some conferences tend to do well while others see neutral to negative profits. When administrative expenses are added in roughly half of all Division IA football programs lost money in 1995 (Sheehan, 277).

Bergmann (1991) shows one mechanism for appearing profitable – count as revenue student fees paid to the University. Student athletic fees constituted over 25 per cent of all “revenues” in the University of Maryland's athletic department for 1986. Duderstadt adds to this peculiar accounting system story by pointing out that capital costs for football are frequently not counted against the budget of the football program. Duderstadt (p 135) points out that the University of Michigan's football program did not pay for \$18 million in stadium expansion and \$8 million in “Jumbotron” expenses for the 1997-98 fiscal year. With a \$45 million annual budget and limited profits without these capital expenses it is no wonder the football program prefers not to pay for its capital. There are direct capital costs and opportunity costs to consider. In examining their football teams stadium needs on an economic basis Tulane found the opportunity cost of a stadium for was quite high and built a law school instead.¹

Since the self-supporting approach to football does not hold water boosters of college football needed to find alternative financial support. This alternative argues that big time sports attract alumni donations to the university. The idea is that football teams attract attention and that attention leads to contributions. This notion was rejected after extensive empirical work as well as much anecdotal evidence failed to turn up the desired connection. Frey (1985) collected numerous studies of the matter. Most of these early studies (1934-1984) examined the relationship between sports and alumni giving. Some found a negative relationship between football success and alumni giving, but none found a positive relationship.

It is stipulated that the team must win to attract endowment contributions, thus the athletic department budget must be sufficient to allow for winning teams. This creates competitive pressure to increase expenditures on facilities. Since there can be at most one national champion and one league champion² there is an ever escalating race to build facilities and attract athletes. If a winning team provides for increases in endowment giving, it should be the case that losing teams would lead to reduced giving. Having a winning team becomes essential. In this scenario the emphasis on winning creates a winner-take-all situation – only the winners will see increased endowments and these at the expense of other teams. In terms of expenditures it is an n-player (n = number of Division IA football programs) prisoners dilemma (see Leeds & Allmen, 2002). The implication for endowments is that the increased endowment from winning football may simply compensate for the costs of creating a winning team.

Endowments are only a means to an end. Universities are interested in endowment that produces operating revenues. In general, a higher endowment can generate more income for the university to pay electric bills, salaries, etc. It also means greater ability to provide scholarships. In this light, endowment per student may be a more important indicator of financial ability than simple endowment.

At issue is whether or not football matters, and in what way? Is simply fielding a team, as the original argument suggested sufficient? Does it have to be Division IA? Does the team have to be good in the sense of generally winning? Or is it essential that the team wins titles? Anecdotes abound that football performance is no aid to raising endowment. Telander (1996, p 130) quotes Notre Dame's development director saying, "There isn't any correlation between giving at Notre Dame and athletic success". He also points out that giving at Wichita State University actually increased when the football program was cancelled.

This paper examines the relationship between the historic quality of a university's football team and the school's general endowment and its endowment per undergraduate student. Other recent studies, such as Shulman and Bowen 2001, tend to measure giving rates as opposed to overall amount of giving. This is a proxy for what the university needs – cash or cash equivalent – endowment.

DATA

The initial data set was composed of the top 120 reported endowments available from The Department of Education's endowment rankings in 2002. To those universities I added universities with NCAA Division IA football programs. Data on all universities was gathered from Peterson's on-line through Yahoo.com's education search, May through December of 2002. After removing universities for which no endowment information or other pertinent information was available there were 175 universities and colleges in the data set. Included on the list are schools as diverse as Rush University with a \$340 million endowment, MIT with \$6,475 million and Swathmore with over \$963 million. The average endowment is \$1,125million. In keeping with the theme of the paper Table 1 shows the universities with the 20 largest endowments. All of the listed schools have or have had major football programs.

Notice the steep drop off in endowment amounts. The top three endowments alone sum to over 19% of all endowments in the data set. A number of the schools in the data set are not noted football powers. Vassar College (\$675 million), for example, has no history with intercollegiate football nor does Yeshiva University (\$775 million). Nor is Oberlin (\$610 million) a noted bastion of football. None of these schools made the top 20 of endowment, however.

For operational reasons endowment per student may be of more interest than gross endowments. Table 2 shows the Top 20 universities based on endowment per undergraduate student. While some of the names are familiar from Table 1, some new names appear – Amherst College and Wellesley for example.

Determining what constitutes a "winning" football team across time is problematic. The "Flutie effect"³, if applied to endowments, would suggest that two teams with identical 2-year win-loss records may have different effects on endowment. Suppose University A's team is 6-6 each of two years for a composite record of 12-12. Obviously, University A has a mediocre team that never won enough to be a champion. University B's team had a dismal 2-10 record one year and a 10-2 record in the second year, thus qualifying for a bowl game and attracting great attention. The aggregate performance of University B's team is 12-12 as well, but the "Flutie effect" would suggest that University B's team would have a more powerful influence on undergraduate applications (the usual meaning of the Flutie effect) and by extension endowment giving.

TABLE 1
TOP 20 ENDOWMENTS

School	Total Endowment (thousands of dollars)
Harvard University	\$18,844,338.00
Yale University	\$10,084,900.00
University of Texas	\$10,013,175.00
Stanford University	\$8,649,475.00
Princeton University	\$8,398,100.00
MIT	\$6,475,506.00
University of California-Berkeley	\$5,639,777.00
Emory University	\$5,032,683.00
Columbia University	\$4,263,972.00
Washington University of St. Louis	\$4,234,599.00
Texas A&M University	\$4,205,849.00
University of Chicago	\$3,828,664.00
University of Michigan	\$3,468,372.00
Cornell University	\$3,436,926.00
Rice University	\$3,372,458.00
Northwestern University	\$3,368,233.00
University of Pennsylvania	\$3,200,812.00
Notre Dame	\$3,089,007.00
Duke University	\$2,663,891.00
Dartmouth College	\$2,490,376.00

The creation of the Bowl Conference Series (BCS, henceforth) led to the creation of competing indexes of team performance. Eventually this led to at least one index of team performance across time – the Billingsley Ranking. The Billingsley ranking system is accepted by the Bowl Conference Series as one method of determining the “best” team in college football. The ranking system is based largely on win-loss record and opponents’ win-loss records, though it does include other measurable outcomes. For details see: http://www.cfr.com/Archives/Search_of_NC.htm. Table 3 shows the top 20 teams on the Billingsley Ranking⁴ system.

Several Universities appear in both Table 1 and Table 3. Notre Dame, Michigan, Texas and Texas A&M are on both Top 20 lists. As a first pass this would suggest that schools with better football teams would appear to be associated with higher endowments. In the case of the Texas teams, oil is a more likely explanation of the high endowment.

TABLE 2
TOP 20 ENDOWMENT PER UNDERGRADUATE STUDENT

School	Endowment per Undergraduate Student (dollars)
Harvard University	\$2,829,480
Rush University	\$2,087,117
Yale University	\$1,874,168
Princeton University	\$1,844,925
California Institute of Technology	\$1,653,070
MIT	\$1,535,936
Stanford University	\$1,363,840
Rice University	\$1,284,746
University of Chicago	\$972,730
Emory University	\$831,162
Washington University of St. Louis	\$721,766
Pomona College	\$712,531
Swarthmore College	\$677,214
Grinnell College	\$661,416
Dartmouth College	\$622,127
Columbia University	\$613,521
Wellesley College	\$569,980
Amherst College	\$542,449
Case Western Reserve	\$492,098
Claremont McKenna College	\$486,148

The “Flutie factor” is probably best typified by winning national championships. NCAA records go back considerably longer than the Billingsley Report index covers and so allows for a broader sweep of data and coverage. In particular the Billingsley Rankings do not include the Ivy League since the Ivy League no longer plays football in the top NCAA division. Table 4 shows the number of championships won by the top 20 schools. Note the prominence of the Ivy League at the top of both championships and endowments. This suggests that a “winner take all” result may be occurring in the football/endowment relationship.

TABLE 3
TOP 20 FOOTBALL PROGRAMS ACROSS TIME

School	Billingsley Rank
Notre Dame	269.441
University of Michigan	268.414
Ohio State University	262.72
University of Alabama	254.715
University of Nebraska	253.868
University of Texas	251.053
University of Oklahoma	250.996
Penn State University	247.73
Florida State University	247.074
University of Minnesota	246.115
Georgia Institute of Technology	245.096
University of Tennessee	244.096
University of Illinois	242.906
University of Georgia	241.752
University of Wisconsin	241.458
University of Pittsburgh	240.719
University of Southern California	240.487
Auburn University	240.142
Purdue University	240.074
Texas A&M University	239.447

There is notable though not complete separation between football powerhouses on the Billingsley Ranking system and Table 2. Outside of the Ivy Leagues and Stanford, absolute endowment size seems to be unrelated to endowment per student. Each one million dollars of endowment provides about 5% for expenditures every year assuming a 5% annual return. Thus a school with stated tuition, room, board and fees cost of \$30,000 and an endowment of \$1 million per student is suggesting an annual expense for education of \$80,000.

Obviously, there are other considerations to take into account in explaining the size of a school's endowment. The simple fact of being in existence longer means that older schools have had longer to collect endowment than younger schools. Private schools which cannot rely on state funds can be expected to work hard to collect endowments.

Another factor likely to effect endowment is the age of the institution. Older universities have had longer to raise endowment than younger universities. Private schools, the Ivys in particular, should have higher endowments due to the absence of state funds to support their activities.

It seems likely that endowments would be associated with some local or state demographics. A wealthy state or large population has greater ability to provide endowment funds. More universities in a state will mitigate this effect, by spreading the wealth. Therefore I include a number of state based variables.

TABLE 4
TOP 20 CHAMPIONSHIPS WON

School	Championships
Yale University	14
Princeton University	13
Notre Dame	10
University of Michigan	9
University of Oklahoma	9
University of Alabama	7
University of Nebraska	6
University of Minnesota	5
University of Southern California	5
Harvard University	5
University of Miami (FL)	4
University of Pennsylvania	4
University of Tennessee	3
University of Illinois	3
Michigan State University	3
Ohio State University	2
University of Texas	2
Penn State University	2
Florida State University	2
Georgia Institute of Technology	2

Academic quality may be a factor in endowment size as well. There is some evidence, the Ivys for example, that suggest academic quality is the primary issue. The Ivys and several other top tier universities withdrew from Division I football in the 1950s. These universities are difficult to gain admission to and have high tuition rates. Higher tuition rates may serve as a substitute for endowment revenues. Alternatively, high tuition rates may be one way of increasing per student expenditure improving the quality of education at the institution – a virtuous circle of ever improving quality justifying increased tuition expense.

Table 5 gives variable definitions and mean values. There are 3 sets of statistics reported because of the limitations associated with the Billingsley Rankings.

Only 75 schools in the final data set had Billingsley rankings, all play NCAA Division IA football. No Ivy League schools are ranked, yet they have extremely high endowments. Stanford and Notre Dame did make the Billingsley Rankings. In general these groups differ in that the Ranked teams tend to have larger student bodies, are far more likely to be public institutions, provide higher levels of education and charge lower tuition. This last difference is probably associated with the public nature of the group.

TABLE 5
SUMMARY STATISTICS AND VARIABLE DEFINITIONS

Variable	Definition	Mean Std. Dev. Full Set	Mean Std. Dev. No Billingsley Ranking	Mean Std. Dev. Billingsley Ranked
Est	Date the institution was established	1858.7 50.64793	1854.29 60.98506	1864.57 31.5407
Private1	Binary for Private vs. Public Institution (1=Private)	0.48 0.501033	0.68 0.468826	0.213333 0.41242
Ivy1	Binary for Ivy League (1 = Ivy League)	0.0514286 0.221504	0.09 0.287620.35	0 0
FootYes	Binary for intercollegiate football program (1 = Yes)	0.942857 0.232781	0.9 0.301511	1 0
FootIAYes	Binary for intercollegiate football program in Division IA of NCAA (1=Yes)	0.611429 0.488824	0.32 0.468826	1 0
Doctor	University provides doctoral education (1=Yes)	0.805714 0.396785	0.67 0.472582	0.986667 0.11547
Pro	University provides professional education (1=Yes)	0.651429 0.477885	0.43 0.49757	0.946667 0.226211
TuiNonRes	Non-resident annual tuition expense	16411.82 6944.97	18968.91 7080.65	13002.36 5071.57
Endow2000	Endowment reported in 2000	1125152 2145826	1131859 2420685	1116209 1728430
UGStud	Number of undergraduate students enrolled	12773.33 19142.74	6999.83 5835.8	20471.33 26664.08
AdmitRate	Admitted students over applications. Lower numbers indicate more difficult entry.	0.601231 0.222238	0.543476 0.223748	0.678238 0.196566
StatPop	Population of state	10340052 8616426	10832224 8760407	9683824 8434163
PerCapIncome	Per Capita Income of State	29354.4 4489.51	30903.5 4615.55	27288.93 3365.42
StateGDP	State GDP	350157.3 310138.3	385961.4 325930.7	302418.6 282851.1
Champ	Number of NCAA National Football title won	0.737143 2.144103	0.38 1.993829	1.213333 2.255883
InState	Number of institutions in the data state in the same state	6.611429 4.259929	7.59 4.39259	5.306667 3.719828
EndperUG	Endowment over UGStud	234469.1 471280	329466.1 574583.9	107806.4 228272.7
	N	175	100	75

The state variable are likely to be correlated. For example a large population in a state may lead to a large number of universities. Similarly, high per capita

incomes may be the result of high Gross State Product. Table 6 shows the correlation coefficients for the state variable considered.

TABLE 6
STATE VARIABLE CORRELATION COEFFICIENTS

	StatPop	PerCap Income	StateGDP	InState
StatPop	1	0.24318	0.95586	0.75654
PerCapIncome	0.24318	1	0.35357	0.39846
StateGDP	0.95586	0.35357	1	0.76318
InState	0.75654	0.39846	0.76318	1

Since we are interested in both population effect and income effect associated with each state the variables PerCapIncome and Statpop were included in the analysis. The correlation coefficient of 0.24318 suggests that while correlated these two variables should not lead to excessive multicollinearity problems.

ANALYSIS

Because not all largely universities with large endowments have had football programs and because the Billingsley rankings do not include a number of teams that have had success on the football field we examine the data using multiple specifications ways. First we look at the relationship between endowment and various measures of football prowess. Table 7 shows the results of various specifications of a simple OLS model.

Simply having a football team or a Division IA football team is not consistently related to endowment. At a first pass it appears that a Divisions IA team or a high Billingsley ranking might have a weak positive influence on endowments. However, the Billingsley ranking is heavily weighted by championships. When we allow for Division IA and Championships it appears that Championships are the controlling influence.

Notable in terms of lack of significance is per capita state income. No specification is per capita income significantly related to endowment size. This supports the proposition that properly motivated a states population will support universities regardless of relative ability to provided funds. State population is, in some specifications, positively related to endowment. Ivy League schools as opposed to simply private institutions seem to have a leg up in terms of endowment. Schools that with high admissions hurdles, as measured by their admission rate, have higher endowments in general.

Next the role of football in endowment per undergraduate was examined. Table 8 shows these results. As stated earlier, this is important as a source of operating revenue for the University as a whole. Higher endowments per student would allow greater resources to be provided to the students and faculty for the main, educational, focus of a university.

TABLE 7:
OLS RESULTS: DEPENDENT = ENDOWMENT

Intercept	13,486,713**	13,174,919**	771,500	8,449,132	8,804,063
	<i>5,668,598</i>	<i>5,554,424</i>	<i>11,437,379</i>	<i>5,478,971</i>	<i>5,471,641</i>
FootYes	<i>-309,098</i>				
	<i>562,664</i>				
FootIAYes		998,735**			670,602
		<i>508,916</i>			<i>497,561</i>
BillRank			11,516*		
			<i>6,185</i>		
Champ				247,701***	232,908***
				<i>61,438</i>	<i>62,260</i>
UGStud	1.5367	1.4447	-3.9563	1.4544	1.4766
	<i>7.2215</i>	<i>7.1405</i>	<i>6.1983</i>	<i>6.8890</i>	<i>6.8719</i>
Est	-6,298**	-7,076**	1,764	-3,970	-4,626
	<i>2,942</i>	<i>2,937</i>	<i>5,698</i>	<i>2,864</i>	<i>2,901</i>
Ivyl	4,117,834***	4,271,733***		3,379,932***	3,557,230***
	<i>686,732</i>	<i>681,542</i>		<i>672,034</i>	<i>683,142</i>
Privatel	-77,527	484,481	-794,946	30,276	382,054
	<i>554,080</i>	<i>608,629</i>	<i>703,661</i>	<i>526,389</i>	<i>586,369</i>
Doctor	308,401	91,983	4,645,784***	198,313	52,471
	<i>433,602</i>	<i>443,931</i>	<i>1,455,221</i>	<i>414,467</i>	<i>427,359</i>
Pro	594,400*	505,445	370,364	548,977*	477,527
	<i>335,734</i>	<i>334,370</i>	<i>720,609</i>	<i>318,274</i>	<i>321,876</i>
TuiNonRes	7.2366	14.3097	82.1574	10.0855	13.8798
	<i>46.0424</i>	<i>45.5869</i>	<i>64.8486</i>	<i>43.8910</i>	<i>43.8719</i>
AdmitRate	-2,412,187**	-2,235,383**	-1,784,973	-2,261,499**	-2,179,500**
	<i>935,408</i>	<i>924,232</i>	<i>1,162,545</i>	<i>889,720</i>	<i>889,583</i>
PerCapIncome	-8.3059	14.3456	-56.2980	-0.2260	12.9061
	<i>37.0942</i>	<i>37.8021</i>	<i>59.5658</i>	<i>35.1405</i>	<i>36.3818</i>
StatPop	0.0369**	0.0296*	0.0712***	0.0338**	0.0294*
	<i>0.0166</i>	<i>0.0168</i>	<i>0.0269</i>	<i>0.0158</i>	<i>0.0161</i>
N =	175	175	75	175	175
Adj. R ²	0.4251	0.4373	0.4384	0.4763	0.4789

Standard Errors in italics, ***= significant at 1%, ** = significant at 5%, * = significant at 10%

Much of the same results emerge – good isn't important but championships are. On the other hand, the first specification of the model suggests that simply having a football team has some negative influence on endowment per student. This is very much along the lines of a winner-take-all environment.

Higher tuition rates have a largely negative association with endowment per student. This suggests a trade-off in tuition per student. In the absence of endowment per student tuition must be used to maintain operations. As with overall endowment levels difficult entry standards are correlated with higher endowments per student. State control variables are not significant.

TABLE 8
OLS RESULTS, DEPENDENT = ENDOWMENT PER UNDERGRADUATE

Intercept	667,010 <i>1,044,918</i>	264,108 <i>1,059,066</i>	717,497 <i>1,075,782</i>	-450,232 <i>1,049,354</i>	-495,698 <i>1,051,180</i>
FootYes	<i>-289,268***</i>				
	<i>103,754</i>				
FootIAYes	-29,028				-86,057
	<i>97,104</i>				<i>95,652</i>
BillRank	289,2087				
	<i>592,9299</i>				
Champ	38,580***				40,479***
	<i>11,775</i>				<i>11,969</i>
Est	180.8884 <i>542.2791</i>	192.8573 <i>559.8253</i>	491.4191 <i>537.1346</i>	534.5628 <i>549.0089</i>	618.6899 <i>557.2297</i>
Ivyl	709,851*** <i>126,677</i>	657,960*** <i>130,010</i>		556,552*** <i>128,763</i>	533,793*** <i>131,297</i>
Private1	331,679*** <i>99,778</i>	347,613** <i>113,780</i>	199,601** <i>66,409</i>	374,811*** <i>98,365</i>	329,716*** <i>110,450</i>
Doctor	2,732.3145 <i>79,988</i>	20,122 <i>84,696</i>	-964,992*** <i>139,767</i>	-5,453.3367 <i>79,425</i>	13,260 <i>82,148</i>
Pro	-14,682 <i>61,490</i>	10,008 <i>63,368</i>	-187,888*** <i>69,075</i>	-3,967.0243 <i>60,576</i>	5,187 <i>61,460</i>
TuiNonRes	-18.1092** <i>8.4926</i>	-17.0924** <i>8.6965</i>	-2.6134 <i>6.2524</i>	-16.6791** <i>8.4101</i>	-17.1664** <i>8.4324</i>
AdmitRate	-648,228*** <i>172,578</i>	-609,597*** <i>176,348</i>	-409,049*** <i>112,134</i>	-589,366*** <i>170,515</i>	-599,888*** <i>171,015</i>
PerCapIncome	-0.8678 <i>6.8360</i>	0.9621 <i>7.2067</i>	-6.7113 <i>5.7453</i>	2.3990 <i>6.7284</i>	0.7132 <i>6.9882</i>
StatPop	0.0012 <i>0.0030</i>	0.0009 <i>0.0032</i>	-0.0008 <i>0.0026</i>	0.0003 <i>0.0030</i>	0.0008 <i>0.0031</i>
N=	175	175	75	175	175
Adj. R2	0.4522	0.4265	0.7004	0.4614	0.4608

Standard Errors in italics, ***= significant at 1%, ** = significant at 5%, * = significant at 10%

CONCLUSION

The regressions indicate that Notre Dame's view of football's relationship to endowments is correct – there's no correlation. Quite simply football whether fielding a team of limited ability or an excellent team has no effect on endowments, but negative effects on endowment per student. The only gain for endowments is through winning national championships. This certainly creates a conundrum for universities. In order to gain the endowment benefits (positive in gross and per student basis) the football team must be championship caliber. Failure to win championships means negative or no effect on endowments. Assuming that other methods exist to increase endowments any non-championship team expenditures represent an economic loss.

Things that do matter to endowments are associated with academic preparation of the student and reputation of the University – high standards are associated with high endowments. The Ivy League with long histories and large endowments have a leg up, but have long since given up on big time football.

High tuition rates show a negative relationship with endowments per student. This interesting anomaly may be partially explained through substitution. A school

with low endowments per student does not necessarily have the ability to reduce resources applied to students without damaging production. To make up for scant endowment, schools must charge higher tuition rates. This makes the school more tuition dependent. Sponsoring a football team under these circumstances, that does not win the national title, diverts money from the core mission of the university reducing resources directed towards general education and research.

It is clear that college football programs do not in general enhance endowments for a university. Other research clearly indicates that very few football programs succeed in covering current expenditures. Thus most football programs, even good ones in Division IA are a net financial liability to the institution. Continued efforts to upgrade the program in a competitive environment appear to have all the earmarks of a Prisoner's Dilemma. If enough schools drop out of football and gross revenues do not drop, the remaining Division IA football programs might be able to both run in the black and increase endowments for the institution.

In regressions run while omitting the Ivy League schools (results available on request) the results are similar though more negative towards football. In some specifications having a Division IA football program is significantly negative and in most specifications football is significantly negative. These regressions also indicate that low state per capita GDP leads to lower endowments and endowments per student though this relationship is not uniform.

These results follow on the heels of a large body of earlier work suggesting that football does not have a positive impact on university finances. At best football is neutral on endowment and endowment per student. A negative effect is far more likely based on these results. The results also indicate the non-cooperative prisoner's dilemma of ever higher expenditures to achieve the championship that will make the expenses worthwhile. It is much like a lottery in that respect – all pay, one wins. Much like a lottery it appears that people play the game without serious consideration of the expected value of the ticket.

REFERENCES

- Bergman, Barbara R. "Do sports really make money for the University?". *Academe* January-February 1991. 28-30
- Duderstadt, James J. **Intercollegiate Athletics and the American University**. University of Michigan Press. 2000
- Frey, James H. "The winning-team myth". *Currents* January 1985, 33-35
- Leeds, Michael and Peter von Allmen. **The Economics of Sports**. Addison-Wesley, 2002
- McCartha, Douglas C., "It pays to win." *Business & Economic Review* 49(1). 2002. 3-12
- Noll, Roger G. and Andrew Zimbalist. **Sports, Jobs and Taxes**. Brookings Institution Press, Washington D.C. 1997
- Sheehan, Richard G. **Keeping Score: The Economics of Big-time Sports**. Diamond Communications, Inc. South Bend, IN. 1996
- Shulman, James L and William G. Bowen. **The Game of Life**. Princeton University Press, Princeton, NJ. 2001
- Siegfried, John and Andrew Zimbalist. "The economics of sports facilities and their communities". *Journal of Economic Perspectives* 14(3). Summer 2000. pp 95-114
- Sperber, Murray. **Beer and Circus**. Owl Books, New York, New York. 2000
- Telander, Rick. **The Hundred Yard Lie**. University of Illinois Press, Urbana and Chicago, IL. 1996

ENDNOTES

¹ Shulman and Bowen (2001) p 250-1 for details

² With the advent of league championship tournaments it is now possible to have two champions in the same league in the same year. This raises a serious question as to what “champion” means.

³ The “Flutie effect” is based on the experience of Boston College. Applications at Boston College increased dramatically the year following Doug Flutie’s famous “Hail Mary” pass that led to the defeat of the University of Miami in 1984. If applied to endowments this would suggest a great win or winning season would have positive effects on endowments.

⁴ This category changes by year, though slowly. For current rankings see: http://www.cfr.com/Archives/Top_Programs.htm