Educational Performance and Athletic Success: An Economist View of Scholarship Distribution in College Football

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Our paper proposes the use of NCAA Graduation Success Rates (GSR) and Academic Progress Reports (APR) to partially reallocate athletic scholarships among NCAA college football teams. Specifically, it would reward academically high performing institutions with additional scholarships and penalize poorly performing institutions with lost scholarships. Scholarships would be transferrable in a market through which those who lose scholarships are able to purchase scholarships from those who were awarded additional ones. The proposal is illustrated using cluster analysis of data for cohort years between 2004 and 2011.

Keywords: graduation success rate, academic progress report, scholarship market, educational performance, athletic success

INTRODUCTION

The term, scholar-athlete, is used by many people and seemingly is subject to different interpretations by most everyone who uses it. There are those who have such negative opinions of the term that they question whether it should even be used. Others view it as an ideal that describes the best of college athletics. Still others see it as an archaic term describing someone who does not fit into the framework of modern intercollegiate sports. The NCAA tracks the educational achievements of athletes for every sport in which Division I programs compete. Each institution is required to submit Graduation Success Rates (GSR) and Academic Progress Reports (APR) for each sport. Both GSR and APR have been used as incentives to encourage schools to improve academic standards and, in cases of institutions that perform poorly, as means of accessing penalties. Currently, when a sport falls below an APR score of 930 on a scale of 1000 it can be denied participation in post-season play and face practice restrictions.

The GSR cohort, unlike the cohort used to compile Federal Graduation Rates (FGR) by the Department of Education includes athletes who transfer into the institutions as well as January enrollees. The FGR includes only fall enrollees. The APR was created in recognition of the reality that student athletes leave institutions, and therefore, do not graduate, for reasons other than lack of academic success. Student athletes who transfer away from an institution do not count as graduates at the original institution nor do students, in good academic standing, who leave college early to play professional sports. Because the GSR does not the capture the institution's success or lack thereof in educating these groups of student-athletes the APR

was created. The APR awards credit for athletes who are eligible to continue playing whether they continue at their current school or transfer to other institutions. It also can be used to measure the institution's relative contribution of the academic progress of athletes who leave college early to play professionally.

In this paper, we propose a redistribution of scholarships based upon institutions' GSR and APR scores. Our proposal would penalize schools that demonstrate poorer GSR and APR scores by reducing the number of scholarships they can award in a given year. The schools with best GSR and APR scores would be given credits that can either be banked for future use should the school receive penalties or can be sold through a marketplace to schools facing current penalties. The latter option would have the effect of transferring funds from lower performing institutions to those that are high performers. The high-performing schools can generate income from supplying credits in the market and low-performing schools will have a demand for the credits to avoid the alternative of competing with fewer scholarship players. Under this proposal the NCAA would set GSR and APR standards at levels it deems appropriate as well the number of scholarships to award academic high performers and to penalize academic low performers.

METHODOLOGY

To illustrate the proposal, we perform a cluster analysis of GSR and APR values in a manner similar to Jensen and Turner's (2014) approach to a proposed realignment of college football conferences. Jensen and Turner used cluster analysis of financial and on-field performance variables to hypothetically realign FBS football conferences using a process similar to the relegation and promotion scheme used in European soccer leagues. In Jensen and Turner's study, 23 programs were relegated to lesser conferences and several programs were promoted to more prestigious conferences creating conferences with similar on-field and financial characteristics. In this study we classify programs in a similar manner but using the GSR and APR measures of academic success. Our purpose is not to change conference alignments but to identify clusters of high-performing and low-performing programs in order to suggest a reallocation of scholarships.

DATA

NCAA institutions report two academic success measures for each sport, Graduation Success Rate (GSR) and Academic Progress Rate (APR). The GSR differs from the Federal Graduation Rate (FGR) calculated by the Department of Education in terms of the size of the cohort. The FGR cohort includes only fall freshmen enrollees. The GSR adds first-time, January enrollees and all transfers whether from two-year or four-year institutions. The mid-year freshman are counted as part of the previous fall cohort. The transfers are placed in the cohort year when they first enrolled at any institution. Two groups are subtracted from the GSR cohort but not from FGR; those who were eligible to return when the left the institution and those who were participants in sports no longer sponsored by the institution. By way of comparison, the NCAA calculated that the GSR cohort for graduating classes of 2015-2018 (cohort years of 2009-2012), was 7.0% greater than the FGR cohort (NCAA). The GSR measures the percentage of the members of the cohort who graduate within six years.

The APR is a measure unique to the NCAA that has no federal government equivalent. The team APR is based on the percentage of the points possible for each sport. That percentage is multiplied times 1000 to calculate the score. Each player receiving athletically related financial aid potentially can add 2 points per semester to the point total if the athlete is (a) academically eligible at the end of the semester and (b) retained during following semester. Anyone who is retained while academically ineligible or who leaves the institution while eligible adds one point to the total. Players who leave while academically ineligible provide zero points. The APR is 1000 times the ratio of sum of points for that sport to possible points (2 times the number athletes receiving financial aid). The NCAA requires a minimum four-year moving average to avoid penalties. The four-year average recognizes that cohorts, particularly in sports with fewer participants, can see cohorts vary significantly from year to year.

The Data used in the present study are the GSR and APR values for each institution participating in NCAA Division I, Football Bowl Subdivision (FBS) during the period 2004-20

RESULTS

The initial year 2004 was chosen to seed the clusters. Seven clusters were initially selected as it is a convenient inflection point, where the RMS STD and the SPRSQ drops and the RSQ increases. Ideally, the RMS STD and SPRSQ should be small and the RSQ should be high (Sharma 1996). The 2004 clusters were used to seed future years. For all cases, the convergence criteria was satisfied. The 2004 Cluster Results appear in Table 1 and the standardized values are shown in Table 2.

TABLE 1
CLUSTER ANALYSIS RESULTS FOR 2004

Means of 7 clusters for 2004			
Cluster Number	N	GSR (Standardized)	APR (Standardized)
1	26	-0.60639	-0.08912
2	12	0.02607	1.28009
3	29	-0.70349	-1.09344
4	21	0.63700	-0.37956
5	13	1.87141	1.42476
6	8	0.91378	0.85264
7	5	-1.04342	0.88234

TABLE 2
CLUSTER ANALYSIS RESULTS

Number of Clusters	Frequency	RMS STD	SPRSQ	RSQ
1	114	0.962	0.4886	0.000
2	38	0.8214	0.1448	0.489
3	76	0.6166	0.1259	0.633
4	55	0.4899	0.0667	0.759
5	21	0.5022	0.0295	0.826
6	17	0.5464	0.022	0.856
7	**12**	**0.4086**	**0.0117**	**0.878**
8	29	0.3576	0.0113	0.889

The cluster rankings for each of the variables are shown in Table 3. An examination of those results makes it obvious that Cluster 5 is the best cluster because it is ranked first for both GSR and APR. The worst cluster is Cluster 3. It is ranked 6th of 7 clusters for the GSR variable and 7th for the APR variable. The only other possible candidate for worst cluster is Cluster 7 which ranked 7th for the GSR variable but was the middle cluster with regard to APR.

TABLE 3
CLUSTER RANKS BETWEEN 2004 AND 2011

Ranks of 7 clusters between 2004 and 2011 (8 years)			
Cluster Number (Standardized)	N (Years)	Mode--GSR (Standardized)	Mode--APR (Standardized)
1	8	5	5
2	8	4	4
3	8	6	7 (worst cluster)
4	8	3	6
5	8	1	1 (best cluster)
6	8	2	3
7	8	7	4

Table 4 provides the names of institutions appearing in the best cluster and the number of times they appeared during the eight-year period of the study. Three programs; Duke, Northwestern and Stanford; were is the top cluster during all eight years. A total of 22 schools appeared at least once in the top cluster and represented a total 80 appearances among them. Three of the institutions are service academies; Air Force, Army and Navy; that do not offer athletic scholarships. They were not excluded because any extra scholarships could still be of value to their programs if sold in the market.

TABLE 4
INSTITUTIONS APPEARING IN BEST CLUSTER

Appearances in Best Cluster 2004-2011	
8	Duke, Northwestern, Stanford
7	Navy
6	Boston College, Rice
5	Vanderbilt
4	Air Force, Army Central Florida, Notre Dame
3	Rutgers
2	Boise State, Miami (Fla), Utah State
1	Miami (Oh), Northern Illinois, Penn State, UTSA, UCLA, Utah, Wake Forest

Table 5 provides the names of institutions appearing in the worst cluster and the number of times each appeared. Two programs, Akron and Houston, occupied the bottom cluster in each of the eight years. A total of 61 schools appeared at least once in the bottom cluster accounting for 246 total appearances among them. No school made appearances in both the top and bottom cluster.

TABLE 5
INSTITUTIONS APPEARING IN WORST CLUSTER

Appearances in Worst Cluster 2004-2011	
8	Akron, Houston
7	New Mexico State
6	Florida International, Massachusetts, Troy
5	BYU, Eastern Michigan, Idaho, Oklahoma State, UNLV
4	Arkansas, Buffalo, California, Central Michigan, Florida Atlantic, Florida State, Georgia Southern, Kent State, New Mexico, South Alabama, Tennessee, Tulsa, Washington State
3	East Carolina, Fresno State, Iowa State, Louisiana Tech, Ole Miss, Texas, Texas State, Texas Tech, UTEP, West Virginia
2	Arizona, Arizona State, Bowling Green, Kentucky, Maryland, Nevada, Southern California, Southern Mississippi, Wyoming
1	Appalachian State, Colorado, Georgia State, Kansas, Louisiana Lafayette, Louisiana Monroe, LSU, Louisville, Michigan State, North Carolina, North Carolina State, North Texas, Old Dominion, San Jose State, SMU, UAB

CONCLUSIONS AND POLICY RECOMMENDATIONS

We have proposed that the NCAA use the top and bottom clusters based on academic performance variables as a means of redistribution of scholarships among institutions in a manner such that the highest performing institutions be awarded additional scholarships and the poorest performing institutions lose scholarships. We are not recommending a specific number of scholarship penalties for low performing institutions or a specific number of additional scholarships for high performing institutions. However, for purposes of illustration we assume that the reward for being in the top cluster academically will be one additional scholarship and the penalty for being in the bottom group will be a one scholarship penalty.

In addition, we recommend that the scholarships involved be tradeable and bankable. These recommendations will leave top performing institutions three options. First, they may award the extra scholarship to help them become more competitive in the sport. Secondly, they can sell the extra scholarship in the market and generate an additional source of revenue for the program. Finally, they can bank or save the scholarship to offset any future penalties or to sell at some point in the future. The poorer performing institutions are faced with two options. They can either purchase scholarships in the market to offset lost scholarships or they can compete with fewer athletes on scholarship.

If we examine the likelihood of these options based upon our cluster analysis, the market option appears quite feasible. The demand for scholarships to replace those lost, a total of 246 representing one for each appearance by a program in the worst cluster, is roughly three times the supply of extra scholarships, one for each of the 80 appearances in the best cluster.

The bankable option seems least likely. For the period studied, not a single institution made appearances in both the bottom and top clusters. There would seem to be little need to bank scholarships to offset future penalties. Banking of scholarships to sell at the future time may have some value but, nothing in our analysis reveals the likelihood that programs would choose to compete with an additional scholarship, if in the top group, or with one less scholarship, if in the bottom group. That is a topic for another study.

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