The Antitrust Economics of NCAA Restrictions

On Athletic Scholarships

by Roger G. Noll

Early in the new millennium, four former intercollegiate athletes became the named plaintiffs in an antitrust suit filed against the NCAA. The plaintiffs alleged that the limits on athletic scholarships for Division I men's college basketball and Division IA college football were a form of anti-competitive price collusion that is prohibited by Section I of the Sherman Act. The case eventually was settled before trial, with the NCAA agreeing to increase the funds available for these scholarships but without admitting liability under antitrust law. This essay is derived from the expert report that I submitted on behalf of the plaintiffs, after excising all information that the NCAA designated as confidential.

NCAA rules limit the monetary value of an athletic grant in aid (GIA cap) to the sum of tuition, fees, room, board, and required textbooks. This limit is less than the total cost of attending college, which includes books that are recommended but not required, school supplies, transportation to and from school, and other living expenses while at college. Until 2004, NCAA rules also made the GIA cap the limit on total financial aid from all sources except Pell grants to low-income students. This rule was changed in 2004 to allow other aid that is unrelated to athletic participation to bring total aid to the cost of attendance (COA). Neither the GIA limit on athletic scholarships nor the COA limit on

total awards applies to scholarship students who are not varsity athletes.

Whereas the plaintiffs in the *White* litigation did not challenge the right of colleges to require that their student athletes remain amateurs, the plaintiffs alleged that capping athletic scholarships below the cost of attending college is unnecessary to protect the amateur status of intercollegiate sports, causes financial harm to athletes, serves only to reduce the cost of athletics programs, and lacks a reasonable business justification.

SUMMARY AND CONCLUSIONS

This section contains a broad summary of the results of my analysis of the economic issues in the *White* case. This analysis is organized into the main economic issues that are part of a rule of reason antitrust case: market definition, market power, sources of market power, anticompetitive harm, and business justifications. Although price fixing is almost always regarded as a *per se* violation of antitrust law, the sports industry – both amateur and professional – has managed to convince the courts that sports should be an exception, primarily because of the unique need for sports to adopt rules that assure competitive balance. Thus, plaintiffs in price fixing cases involving sports usually are required to bear the burden of proving matters that do not need to be proved in a normal collusion case, such as defining the relevant market, showing that the defendants collectively enjoy market power, and demonstrating either that collusion produces no benefits to consumers or that the benefits that are produced can be achieved in a reasonably,

less anticompetitive manner.

Relevant Markets

The starting place for an economic analysis of the NCAA's practices regarding athletic scholarships is to identify the market in which these restrictions apply. In antitrust economics, market definition begins with a specific good or service, called the reference product, and then identifies the goods or services that a buyer would regard as a close substitute for the reference product. The objective is to identify close competitors of the reference product, and in so doing to determine the group of sellers that, if they acted jointly, could cause a small but significant non-transitory increase in price.

The reference product that forms the basis of the plaintiffs' complaint is higher education services that are sought by prospective college students who are the most gifted athletes in their age cohort in the sports of men's basketball and football. The price at issue is the net cost to the student for attending college, which is the total cost of attendance less the financial aid that the student is offered. I conclude that the relevant markets in this case are higher education services for athletes who qualify for Division IA football scholarships, and higher education services for athletes who qualify for Division I basketball scholarships. The suppliers in these two markets are the colleges that field Division IA football teams and Division I basketball teams, respectively. The buyers in these markets are prospective student athletes who seek to obtain higher education services, who desire to

play either Division IA football or Division I basketball, and who possess sufficient athletic skills to be offered an athletic scholarship in either of these sports at a college in the corresponding relevant market.

Plaintiffs also alleged that Division IA football and Division I basketball are relevant product markets. I believe that both of these sports are relevant product markets, but I also conclude that even if they are not relevant product markets, collusion on the price of higher education to scholarship athletes still would be anticompetitive because this collusion arises in a separate market. Successful monopolization of the market for student athletes reduces costs and increases profits even if members of the price-fixing cartel compete with other firms in final product markets as long as these competitors do not offer student athletes a close substitute for the higher education services that are provided by members of the cartel. In this case price collusion in the market for higher education services also causes anticompetitive harm in the final product markets because the reduced costs of the cartel members lead them to have a larger share of sales in the final product markets than is economically efficient.

Market Power

In antitrust economics, market power is the ability to control price or exclude competitors. In the two relevant markets for higher education services – one involving Division IA football players and the other involving Division I basketball players – the

suppliers all are members of the NCAA. The market power of the NCAA arises from an agreement among member schools to abide by the NCAA's rules that pertain to these markets, and from the ability of the NCAA to enforce its rules by punishing schools and athletes if either is found to have violated the rules. Because NCAA members account for 100 percent of sales in these markets and because no other entity can enter these markets without becoming a member of the NCAA, effective collusion on the price of higher education services for student athletes creates a monopoly and thereby enables the NCAA to control price.

The proof of market power in this instance involves showing that the GIA cap is a binding constraint on the colleges that participate in the relevant markets and that the NCAA effectively enforces its financial aid rules. Because virtually all athletic scholarships set the price of higher education services equal to the GIA cap and rise and fall as the GIA cap is changed, because other costs of fielding a Division IA football team and Division I basketball team have risen dramatically as revenues from these sports have risen, because schools and student athletes sometimes violate the rules regarding financial aid and other benefits to athletes, and because the NCAA takes a large number of enforcement actions against colleges and student athletes, in many cases for trivial violations, I conclude that the NCAA members collectively possess and exercise market power in the relevant markets.

Sources of Market Power

Market power can be the result of superior foresight and efficiency as well as anticompetitive acts. The former arises when a single supplier possesses market advantages that others can not duplicate. In this case, the relevant markets do not contain one or a few dominant suppliers that control price. Instead, the relevant markets are structurally competitive. The market power that is exercised in setting the price that is paid by student athletes for higher education services above the competitive level arises solely from the vigorous enforcement of the NCAA's financial aid rules. The colleges that are suppliers in the relevant markets have empowered the NCAA to enforce the financial aid rules that collectively these schools promulgate through the NCAA. In the absence of an agreement not to compete as enforced by the NCAA, these schools would compete in the relevant markets.

Anticompetitive Effects

The most apparent anticompetitive effect arising from the NCAA's financial aid rules is the difference between the collusive price and the competitive price for higher education services for student athletes in the relevant markets, which is the standard measure of damages in antitrust litigation. In addition, price collusion causes other anticompetitive harms that are difficult or impossible to quantify and so normally are not included in the calculation of damages.

One effect of collusive prices is to cause some buyers to be forced from the market.

In this case, the form this harm takes is to cause some prospective student athletes to decide not to attend college because the collusive price creates more financial sacrifice than they are able or willing to bear to attend college. In other cases, the NCAA's financial rules distort the choice of college. For example, the GIA cap provides no allowance for travel between home and school. When recruiting local student athletes, coaches emphasize that staying near home for college saves travel expenses, which in turn influences decisions about which college to attend.

Another anticompetitive effect of the NCAA financial aid rules is to increase the salaries of successful coaches and athletic directors. Because the NCAA does not control expenditures on coaches and athletics directors, competition among colleges determines their salaries. The competitive salary for coaches is determined in part by the gap between the revenues that student athletes create and the cost of financial aid. The effect of collusion among NCAA members in the relevant markets for student athletes is to increase this gap, and hence to increase the competitive market salary of coaches and other personnel who are successful in recruiting talented athletes. In addition to transferring income from student athletes to coaches and athletic administrators, these higher salaries distort occupational choices by creating an excessive incentive to pursue careers in coaching and athletic administration.

Finally, as with all forms of collusion, the NCAA financial aid rules create a powerful incentive to cheat – to find ways to provide additional financial assistance or other

perquisites to influence the college choices of student athletes. Whereas cheating against many cartel rules is not socially harmful, teen-age student athletes, who must be a party to cheating, may not understand the distinction between this form of cheating and breaking other rules.

Business Justifications

An action that has an anticompetitive effect can have offsetting benefits to society. In antitrust economics, an otherwise anticompetitive act has a reasonable business justification if the act produces an efficiency benefit that otherwise could not reasonably be obtained by less anticompetitive means. NCAA scholarship rules have three possible business justifications: preserving amateurism, achieving competitive balance, and maximizing athletic participation. I conclude that none of these are valid justifications for the current NCAA financial aid rules.

To begin, the records of the NCAA provide no basis for believing that these were the actual justifications for the current limits on athletic scholarships. For decades NCAA committees have proposed raising the GIA cap in various ways, and almost without exception these proposal are rejected on the basis of their cost.

With respect to amateurism, the current GIA cap is below previous NCAA financial aid limits and the standards of the leading body in amateur sports, the Amateur Athletic Union (AAU). When the NCAA began to regulate athletics-based aid in 1952, athletic

scholarships could cover the full cost of attendance. By the early 1970s athletic scholarships were set below COA, but still covered course-related supplies and some incidental expenses. At no time did anyone claim that in these eras student athletes were not amateurs, or that the popularity of intercollegiate sports suffered because athletic scholarships were too generous. Current AAU rules allow amateur athletes to recover reasonable expenses, which include stipends in lieu of forgone earnings while training for the Olympics. The AAU's standard of amateurism would not be violated by athletics scholarships that were set at the cost of attendance. Moreover, the NCAA rules explicitly disavow the notion that financial aid equal to the cost of attendance violates the principle of amateurism, for in some circumstances athletes can receive total aid that equals or exceeds COA.

The competitive balance argument is not valid. If making weaker football and basketball teams stronger were a legitimate goal, the less anticompetitive means for achieving that objective would be a direct financial payment to financially strapped universities, such as more equal distribution of the revenues from college bowl games and post-season basketball tournaments. In reality, restrictions on athletic scholarships have had no effect on competitive balance among colleges. Because colleges compete in dimensions in which costs are not controlled, such as recruiting, facilities, coaches and other personnel, economic analysis predicts that the effects of collusion in athletic scholarships will be offset by more intense competition in other dimensions, such as paying

more for successful coaches.

The underlying source of the goal to maximize participation is that whereas NCAA Division IA football and men's Division I basketball are generally profitable, most other varsity sports incur substantial financial losses, and athletics departments also sometimes are required to offer other athletic opportunities for students, faculty and staff. Thus, lower costs and higher profits arising from the NCAA's financial aid rules in the relevant markets might enable colleges to provide other athletic activities.

This argument also does not constitute a reasonable efficiency justification. First, even if one accepts that colleges ought to provide a wide array of money-losing athletic opportunities, there is no basis for believing that the cost of these activities should be paid by student athletes in the relevant markets. The benefits of these activities, if they exist, are broadly shared among students, faculty, staff and alumni, not just basketball and football players. Second, there is no reason to believe that the principal beneficiaries of the cap on athletic scholarships are other sports, and considerable reason to believe that the main beneficiaries are coaches and athletic administrators, whose salaries are higher if the football and men's basketball teams generate more revenues and profit. Third, the magnitude of the gap between the cost of attendance and the GIA cap is trivial compared to the budgets of athletics departments. Even if the entire amount of the gap were passed through to the budgets of other sports, with no effect on the salaries of football coaches, men's basketball coaches, and athletic directors, the effect on the budgets of other sports

would be small.

Organization of Report

The remainder of this report contains the basis for these conclusions. I first present an economic history of the NCAA, including the revenues from football and basketball and the evolution of financial aid for athletes. I then discuss each of the issues summarized above: market definition, market power, sources of market power, anticompetitive effects, and reasonable business justifications.

ECONOMIC HISTORY OF THE NCAA

While college students have engaged in organized sports since the 18th Century, teams representing colleges did not emerge until the middle of the 19th Century, and did not begin to generate significant attendance and revenues until the 1880s. The NCAA was formed after intercollegiate sports became widespread and financially significant. This section reviews the history of intercollegiate sports and the role that the NCAA has played in this history.

Origins of Intercollegiate Athletics and the NCAA

Intercollegiate sports began in the second half of the 19th Century, but colleges did not organize leagues or even play by the same rules until much later. The first

intercollegiate events apparently were rowing contests, with Harvard and Yale competing as early as 1852, and Brown, Harvard, Trinity and Yale forming the College Rowing Association in 1859. In the same year, the first intercollegiate baseball game was played between Amherst and Williams. By the early 1870s, cricket and track and field had become intercollegiate sports, and several others were added before the turn of the Century.

The first intercollegiate "football" games were scheduled between Princeton and Rutgers in 1869. The first game, a version of soccer featuring teams of 25 players, was played under Rutgers rules, and Rutgers won, 6-4. The second game was played under Princeton rules and was a version of soccer that incorporated an important feature, now found in Irish or Australian football, that allows players to catch the ball, stop in their tracks, and take a free kick. Princeton won this match in a rout. A third game to determine the champion was never staged, most likely because, quite naturally given the earlier results, the two schools could not agree on the rules.

The first football conference, the Intercollegiate Football League, was formed by Columbia, Harvard and Princeton in 1876, with Yale joining in 1879. The game was essentially Rugby Union, with 15 players, running with the ball, and kicked goals worth four times as many points as touchdowns. During the 1880s and 1890s, a series of rule changes, beginning with a reduction in squad size to 11 and replacement of the rugby scrum with the line of scrimmage, which involves transferring the ball from the center to the quarterback (initially kicking, eventually a hand-off or throw). These changes caused

the American game to diverge to "gridiron" (as the game is called in many other nations). In the 1880s, games resembling contemporary football began to be played regularly by many colleges.

In 1902, the first Rose Bowl was played between the best teams from the east and west, and Michigan eked out at 49-0 victory over Stanford (the game was halted in the third quarter; perhaps the Michigan players had grown weary). The second Rose Bowl, the beginning of a continuous series to the present, was held in 1916. Although occasional one-shot post-season games were organized over the next two decades, no other bowl game managed to last more than two years until the Cotton, Orange, Sugar and Sun Bowls were created between 1933 and 1937.

Basketball's rise to popularity was meteoric after its invention by James Naismith at the Springfield, Massachusetts, YMCA Training School (later Springfield College) in 1891. The original game differed from the contemporary game in that teams had nine players, dribbling or even moving feet while in possession of the ball was not allowed (with "allowance" for players who caught the ball while running), the "basket" was a real basket (no hole in the bottom) without a backboard, and the game was played with a soccer ball. Because of its origins, the original spread of basketball was primarily under the auspices of the YMCA, but in the 1890s many colleges adopted the game for both men and women. The first men's intercollegiate game was played in 1895 between Minnesota State School of Agriculture and Hamline College (Minnesota won 9-3), and the first women's

game occurred a year later between UC Berkeley and Stanford, won by Stanford 2-1. The first game featuring five players on a side matched Iowa and Chicago in1896, with Chicago winning 13-12. In 1901 Trinity, Wesleyan and Yale formed the first basketball conference, the Triangular League, and the Big 10 added basketball in 1905.

In the early era of intercollegiate sports two problems emerged. First, colleges did not all play by the same rules, so that arranging matches frequently involved negotiations over how the game would be played. Second, and much more important, both basketball and football became violent. Violence in football had been a problem from the outset, causing Princeton to cancel its games in 1871. With the transformation of soccer to rugby to American football, the game introduced a sequence of set plays that enabled players to regroup and plan a strategy on a play-by-play basis. Set plays created opportunities for organized mayhem. An example is the "flying wedge," in which all the players on offense except the runner would link together at one area of the field and mow a path through the opposition, sometimes trampling players in their wake. By 1905, injuries in intercollegiate football had become a national scandal, and basketball had become sufficiently violent that the YMCA stopped sponsoring teams. President Theodore Roosevelt responded by convening a meeting of college leaders at which he exhorted them to improve the safety of intercollegiate sports or face a federal ban.

In 1906 the Intercollegiate Athletic Association of the United States (IAAUS), which became the NCAA in 1910, was created in response to President Roosevelt's

meeting and concerns by colleges about the safety of football that caused several schools, including Columbia and Stanford, to drop football and Harvard to warn that it was dropping football unless other schools agreed to change the rules. Even basketball at the time was a rough and tumble sport, involving elbows and even fists. Initially the main purpose of the NCAA was to promulgate standardized rules of play for intercollegiate sports that would promote safety, beginning with football and basketball; however, the original constitution established the principle that intercollegiate athletics was an amateur sport, stating: "No student shall represent a college or university in any intercollegiate game or contest... who has at any time received, either directly or indirectly, money, or any other consideration." The NCAA's first president characterized the policy as a ban against professionals playing college sports. The policy faced two major problems. First, it was vague. Obviously, it could not mean that student-athletes could never be employed or receive need-based financial aid, but exactly where was the line between legitimate and illegitimate financial assistance that defined professionalism? Second, the original NCAA lacked an enforcement mechanism. Member colleges and conferences were expected to enforce rules that implemented the principle of amateurism.

From the perspective of economics, the NCAA as originally conceived served to improve economic efficiency. Standardization reduced the costs of scheduling games by eliminating negotiations over rules. Rules to reduce injuries not only protected players, but in so doing induced more players and colleges to participate in the game. Standardization

has a cost as well in that it inhibits experimentation, but the NCAA has permitted contests to be scheduled that tested new rules, so this is not a serious basis for complaint. In general, the NCAA's function as a standards organization for the rules of play is very likely to create substantial social benefits. In addition, the principle that college athletic programs are for students and that colleges should not employ superior athletes simply for the purpose of fielding strong teams and thereby generating more income is not inherently anticompetitive. Nevertheless, the pursuit of amateurism is a slippery slope. If schools commercialize athletics for financial gain and combine to limit aid to student athletes more tightly than is required to preserve amateurism, the amateurism rationale becomes a sham to hide collusion among horizontal competitors.

National Championships and the NCAA

In 1921, the NCAA branched out from its role as an organization for standardizing rules of play by staging its first national championship, in this case in track and field. During the 1920s and 1930s, the NCAA gradually added more championships.

Basketball

The first post-season national basketball championship was staged for small colleges in 1937 by the predecessor of the National Association of Intercollegiate Athletics. For major colleges, the first post-season championship was the National Invitation

Tournament, which commenced in 1938. The NCAA championship was organized by the Basketball Coaches Association in 1939, and became an NCAA event a year later.

Both the NIT and the NCAA tournaments expanded steadily, and they now involve 129 teams with games played over four weeks from mid March through early April. The champions of all Division I conferences automatically qualify for the NCAA tournament, and the remaining positions are filled by other strong teams, usually from the strongest conferences. The two tournaments were comparable in strength and popularity until around 1970. Until that time, some teams that were invited to both tournaments selected the NIT, and the NCAA field was smaller (25 in 1970) so that top teams who were not conference champions could play only in the NIT. As a result, the NIT championship semi-finals normally involved very strong teams.

Beginning in the 1960s, the NCAA adopted a series of rule changes that culminated in the requirement that teams must compete in the NCAA tournament if invited unless they elected not to compete in any tournament. By the late 1980s, the NIT had become distinctly inferior and had lost most of its popularity. Eventually the NCAA purchased the NIT in 2006 as part of a settlement of an antitrust complaint by the NIT.

The NCAA men's basketball tournament has become extremely lucrative. Table 1 shows the revenues from the tournament for selected years since 1970. The 2006 tournament generated

Table 1:
Financial Performance of NCAA Tournament, 1970-2004
($000)

Year	*Ticket Revenues*	*Television Revenue*	*Other Revenue*	*Total Revenues*	*Total Costs*	*Net Revenue*	*Number of Teams*
1970	825*	550	*	1,375	309	1,066	25
1974	1,073*	1,241	*	2,314	398	1,916	25
1975	1,443*	2,530	*	3,973	594	3,379	32
1978	1,805	4,691	133	6,629	680	5,949	32
1979	2,483	5,159	268	7,910	1,029	6,881	40
1980	3,113	8,857	187	12,157	1,309	10,848	48
1982	4,988	14,631	487	20,106	2,340	17,766	48
1983	4,482	16,879	395	21,756	2,287	19,469	52
1984	5,667	20,138	1,079	26,884	2,831	24,053	53
1985	5,847	28,327	654	34,828	3,749	31,079	64
1990	9,846	63,505	2,829	76,179	9,032	67,147	64
1995	14,115	166,200	4,331	184,646	13,784	170,862	64
2000	25,079	227,700	500	253,280	18,564	234,716	64
2001	27,503	242,100	379	269,982	20,920	249,062	65
2004	37,680	400,000	358	438,037	23,414	414,623	65
2006	41,224	453,000	1,340	495,564	25,105	470,459	65

* Ticket sales and other revenues not separated until 1978.

Source: Official NCAA Men's Final Four Records Book, NCAA, 2007, p. 75.

almost a half-billion dollars but cost only $25 million, thereby generating profits of $470 million (about $1.4 million per Division I member). A small portion of the profits from the tournament are retained by the NCAA to cover the costs of administration and other championships, but nearly all of the profits are paid back to colleges according to a complex formula. Forty percent of net revenue from the tournament, after subtracting the share retained by the NCAA, is paid on the basis of the total number of tournament games teams in the same conference have played

over the past six years. A game played is worth one unit, and the payout per unit is 40 percent of net revenues divided by the total number of units earned in the previous six years. Typically conferences then share this revenue among all of their member teams, although conferences are free to choose their own sharing arrangements. In 2006, a unit was worth $163,981, which created a million dollar free throw. When Tony Skinn of George Mason sank a free throw with twelve seconds remaining to assure an upset of North Carolina, the Colonial Athletic Association won over $163,000 per year for six years.

Another forty percent of net revenue is paid to member institutions based on the number of intercollegiate sports that they sponsor and the number of athletic scholarships that they grant. The remaining twenty percent is distributed by the NCAA to support athletes and to serve other academic purposes.

To put the profitability of the NCAA men's basketball tournament in perspective, the net profits per member of Division I, after subtracting the revenues that are retained by the NCAA, are substantially larger than any Division I school spends on grants-in-aid for men's basketball players. The face value of an athletic scholarship varies substantially among schools, mainly because of differences in tuition. For example, in-state tuition for the 2006-7 academic year is $4,004 at Troy State University and $3,327 at UC Berkeley, but $32,994 at Stanford. In 2007-8, out-of-state students paid an additional $4,004 at Troy state and $12,735 at Berkeley. Thus, the cost of a scholarship to a department of athletics can be as low as around $13,000 or more than $40,000. With 13 scholarships for men's basketball, total expenditures on grants-in-aid range from under $200,000 to $600,000, with most schools around $350,000. For example, according to the NCAA's Equity in Athletics Disclosure Act (EADA) data, in the Pac 10 in 2005-6, Stanford and USC (the only private schools in the conference) spent more than $400,000 on financial aid in basketball, spending $597,000 and $451,000, respectively. Thus, even for schools with the most costly athletic scholarships, the net profits per Division I school are more than double total scholarship costs.

Football

The NCAA has never sponsored a national championship for major college football, although it does sponsor end-of-season tournaments in Divisions IAA, II and III.

Bowl games commenced before the NCAA began to sponsor national championships, and the traditions and success of the major bowls have created an obstacle to a formal NCAA championship that has, so far, proved impossible to overcome. This history is reflected in the renaming of Division IA to the Football Bowl Subdivision. Consequently, the closest thing to a national championship game today is the feature game of the Bowl Championship Series (BCS).

The origin of the BCS is the Bowl Coalition, formed in 1992. The Bowl Coalition was an agreement among five conferences (Atlantic Coast Conference [ACC], Big East, Big 8, Southeast [SEC] and Southwest [SWC]), Notre Dame, and four bowls (Cotton, Fiesta, Orange and Sugar). The agreement stipulated that if one of the two top teams in the nation (not counting the Big 10 and Pac 10) was the champion of the Big 8 (Orange Bowl), SEC (Sugar Bowl) or SWC (Cotton Bowl), the best of these three champions team would be matched in its affiliated bowl against the best other team that was not one of these three and not the Pac 10 champion or any team from the Big 10 (but including the Pac 10 runner-up). If none of these three were among the top two teams, the two best available teams would play in the Fiesta Bowl. The point of the coalition was to maximize the chance that a national championship game could be scheduled, subject to honoring the tie-ins between bowls and conferences. Because the game could not match champions from the Big 8, SEC and SWC, and because the Coalition did not include the champions of the Big 10, Pac 10 or any other conference, the game usually did not involve the two best teams, and so

often did not determine a national championship.

The Bowl Alliance replaced the Bowl Coalition in 1995 when the SWC broke apart after the departure of four of its teams to the Big 8 (now Big 12). The Alliance included the ACC, Big East, Big 12 and SEC and the Fiesta (Big 12), Orange (ACC) and Sugar (SEC) Bowls, but granted special status to Notre Dame as well. The Bowl Alliance adopted the same basic strategy for scheduling games except that while the top match had to include a team from the ACC, Big 12 or SEC, the match-up did not have to honor the bowl affiliations of the member conferences. The best game rotated among the bowls without regard to conference affiliations.

The BCS replaced the Bowl Alliance in 1998 when the Rose Bowl, Pac 10 and Big 10 joined the Bowl Alliance members. For the first eight years, the six champions of the participating conferences plus two other teams (Notre Dame was given a spot if it ranked among the top eight teams) played in four bowls. The championship game, involving the two top teams according to an ever-changing formula based on polls and computer rankings, was rotated among the four bowls, with conference-bowl affiliations (Fiesta-Big 12, Orange-ACC, Rose-Big 10 and Pac 10, Sugar-SEC) used to match teams in other games. In 2007, the BCS added a fifth bowl, the BCS Championship, that rotates among the four bowls and expanded the field to ten teams.

In addition to BCS games, many lesser bowls exist. In 2006-7, 32 bowl games were played. Division IA contains only 119 teams, so over half are now in bowls,

including several teams with records of six wins and six losses. Bowl games have become extremely lucrative. The five BCS games pay most participants $17 million each, although the team's conference shares these revenues after deducting the expenses of the participating team. Among the remaining bowls, payouts are lower, ranging from $300,000 per team in the Papajohns.com bowl (in December 2006 South Florida whipped East Carolina 24-7) to $4.25 million in the Capitol One (formerly Citrus) Bowl (in 2007 Wisconsin beat Arkansas 17-14). The total payout in the 2006-7 bowl season was about $209 million, or about $1.8 million per Division IA school.

By comparison, the total costs of athletics scholarships for 85 football players range between $1 million and $3.5 million, with most schools in the range of $1.8 to $2.4 million. For example, according to the EADA data, in 2005-6 the eight public universities in the Pac 10 all spent between $1.9 and $2.2 million on football aid, while private Stanford spent $3.7 million and Southern California spent $3.0 million. Thus, the average profit per Division IA college from the BCS system is not enough to pay for all football scholarships, assuming that these profits were equally divided (which is far from the case), but these profits are sufficient to pay 75 percent or more of football scholarship costs at nearly all public universities.

The NCAA plays a limited role in the bowl system. As in basketball, conferences, not the NCAA, decide how bowl revenues will be divided among their members, and negotiate tie-in arrangements whereby a bowl is given a place in the queue for selecting

teams from the conference. But unlike basketball, the NCAA has no role in collecting and dispersing the revenues from Division IA post-season games. Until last year, the NCAA required bowls to guarantee a minimum payout of $750,000 per team, but bowls successfully evaded this rule by requiring participating colleges to guarantee the sale of a large number of tickets. As of 2006-7, the minimum payout rule was abandoned, and now each bowl negotiates with either conferences or colleges the financial arrangements for their appearance.

Some sports writers, fans and coaches have advocated a national championship playoff in Division IA, as in the other football divisions. This proposal is highly unlikely to be adopted. Adopting a Division IA football tournament would require majority approval by the members of Division IA, and a majority of Division IA members belong to the six conference members of the BCS system. Because the BCS is extremely lucrative for these conferences, they are unlikely to agree to share the revenues with other colleges on a substantially more equitable basis.

Financial Aid Regulation

From the 1870s to about 1900, sports were organized by students and financed by student organizations. Campus athletics organizations also were organized into the Intercollegiate Association of Amateur Athletes of America. Teams were run by captains, usually students, who also appointed a team manager, also usually a student, to handle day-

today operations, including financial affairs. Financial assistance to players was paid by the team leadership from funds collected from student organizations and gate receipts.

Initially, the income to the teams was used to defray the costs of the sport and the team organization, but as revenues grew, payments to team members also grew and began to be more like employment relationships. In some cases, athletes played for valuable non-cash prizes. For example, in the 1870s the winners of an intercollegiate rowing regatta on Lake Saratoga were given silver goblets worth $500 at a time when the average annual wage was $300. In other cases, college students played for cash prizes, the first perhaps being future Harvard President Charles Eliot who, in the 1850s, along with his teammates, won $75 when Harvard won an intercollegiate rowing contest. By the 1860s, prizes for winning regattas were as high as $500, and in 1874 Yale offered prizes of $12 to $25 for first-place winners in the intercollegiate track meet that it hosted. Yale recruited football player James Hogan by offering, among other things, a trip to Cuba and the concession for scorecards at Yale games. Some "ringers" were not even regular students. In 1896 Lafayette College induced West Virginia star Fielding Yost to play one game against Pennsylvania, after which he returned to West Virginia.

Although financial control of sports by students had been controversial since the 1870s, very little was done to wrest control away from students until the 1890s. Although professionalism among athletes was a concern, the main concerns of colleges pertained to the professionalization of coaching. In 1883, Harvard organized a conference of eight

colleges to adopt a common policy on intercollegiate athletics, and the group eventually adopted eight rules, among which were no professional coaches, no games against teams other than other colleges, a limit of four years for athletic eligibility, faculty governance through a campus athletics committee, and an agreement to play only colleges that abided by the same rules. These proposed rules were then sent to 21 eastern colleges, but only Harvard and Princeton adopted them, so they were not put in place. The Intercollegiate Conference of Faculty Representative, representing the faculty of seven midwestern universities that a year later became the Western Conference (the precursor to the Big 10), first issued regulations about payments to athletes in 1895. The 1895 meeting adopted the policy that an athlete who had accepted pay to participate in any athletic contest could not participate in college sports and that all members of intercollegiate teams had to be students. But these rules were not adopted at that time by even the universities of the representatives at the conference. In 1898, Brown convened a conference to discuss outlawing professionalism in college baseball, but the proposed regulations that emanated from this conference also were never adopted by the participating colleges. In 1899, the Columbia football team manager was caught paying the school expenses of five players and cooking the books to hide the payments, but despite strong responses from some faculty, nothing was done to alter the situation. Thus, throughout the 1880s and 1890s, all attempts to establish common eligibility rules across colleges base on amateurism failed.

When the NCAA was formed, financial support for athletes was distinctly a

secondary concern to the "mayhem on the field" that led to many serious injuries and death. Although the colleges that formed the NCAA adopted the principle that athletes should be both amateurs and students, there was not the same consensus about what this principle actually meant as there was agreement that football and to a lesser extent basketball had to be made less violent and removed from control by student associations. As a result, the early years of the NCAA focused mainly on playing rules. The commercialization of intercollegiate sports, especially football, and the professionalization of athletes was not materially affected by the NCAA in the ensuring thirty years. Instead, a system evolved in which individual teams defined amateurism differently.

In 1929, a Commission organized by the Carnegie Corporation issued a report on the state of intercollegiate athletics that was the culmination of a three-year study. The report found that about 85 percent of the colleges surveyed paid athletes in one form or another. The report recommended that college presidents convert college sports to an amateur activity, eliminate professional coaches, and return the task of managing sports teams to students, with oversight by colleges. None of these recommendations were adopted, primarily because sports (especially football) had become so popular and financially successful that most colleges did not want to undertake a dramatic a reorganization that would threaten college sports as a popular amusement and cause colleges once again to lose control. Thus, the Carnegie report was dismissed by college administrators as an anachronism.

Conferences

Soon after the Carnegie report, the nation entered the Great Depression, which put significant financial pressures on colleges as well as just about everyone else. Whether motivated by the report or hard times, more conferences began to impose restrictions. In 1980, the NCAA collected historical information about financial aid policies between 1930 and 1958, and found the following information.

The SEC prohibited athletic grants in 1933. Financial aid to athletes had to be awarded by the university's regular process for providing aid to all students. In 1936, the SEC changed its rules to permit athletics scholarships that covered tuition, fees, room, board and books if the athlete met the same academic criteria that were applied to other scholarship students. In 1941, the rules were changed again to increase scholarships to include laundry and medical care; however, training table (separate meals for athletes) and aid from other sources were prohibited, earnings from outside employment were limited to $10 per month, and the duration of aid was limited to five years. In 1945, the SEC limited the total number of athletics scholarships in all sports to 75, and in 1946 the value of athletics scholarships was increased to allow $10 per month for incidental expenses. From 1948 through 1951, the SEC adopted the NCAA's "sanity code" (discussed subsequently), but returned to its previous rules when the sanity code was abandoned in 1951. Finally, in 1949 the SEC adopted a rule whereby a student who transferred from one SEC school to

another would lose two years of athletic eligibility.

The SWC prohibited athletics scholarships in 1930, although it allowed athletes to earn $0.50 per hour up to $50 per month for "manual labor." In 1932, the SWC amended its rules to allow athletes to be eligible for the same aid as other students, based on need and academic achievement. In 1938, the SWC permitted colleges to pay tuition and fees in excess of $30 per semester or $20 per quarter, with the proviso that students had to pay at least as much as was received in financial assistance. The student's share could be earned through employment. In 1941, the SWC expanded the "jobs rule" to specify that an athlete could earn room, board, fees and laundry through employment. A few years later (records are incomplete, but probably 1946 or 1947) the SWC permitted athletic scholarships in the amount of tuition and fees, with a new jobs rule that an athlete could receive room, board and laundry by working 160 hours per year (in a standard academic calendar, this amounts to about five hours per week). The 160-hour rule was dropped in 1948. These rules remained in place after 1948 as the SWC did not adopt the sanity rules.

The predecessor to the Big 10 was formed in 1895, but it did not succeed in beginning to control eligibility until 1906, when it passed rules requiring that athlete's satisfy admissions requirements and banning participation by freshmen and graduate students. In 1922, the conference, now the Big 10, appointed a commissioner to enforce its eligibility rules. In the 1920s, the Big 10 prohibited both athlete recruitment and athletic scholarships, but allowed students to be employed by the department of athletics once they

had arrived on campus. The Big 10 was known as a "simon pure" conference because the Commissioner actually enforced its rules, as in 1929 when the conference cancelled the eligibility of most of Iowa football players because they had been given loans by the athletics department, even though the loans were mostly short-term and had been repaid.

The Big 10 rules were relaxed during the 1930s, and by 1941 the Big 10's policy was inconsistent: financial aid based on athletic ability was prohibited, but unearned financial was allowed if all athletic aid was equal or was based on non-athletic criteria, such as academic standing or need. Sometime between 1941 and 1949 (records are not complete, but probably 1946 or later) athletic scholarships formally were permitted, with two major limits. First, to receive a scholarship for tuition and fees a student had to demonstrate clear financial need and satisfy minimum academic requirements. Second, students could receive aid in excess of tuition and fees if they exhibited superior academic scholarship (top one-fourth of high school class or, for transfers, a B average at another college). The Big 10 did not adopt the sanity code. In 1958, the financial aid rules were somewhat simplified: students could receive aid from employment, but unearned aid had to be based on academic standing and need, and was limited to tuition, fees, room, board and books.

The Ivy League had no league rules regarding financial aid until 1954, when it adopted the rule that schools would not award athletic scholarships, but that athletes would be eligible for the same aid as other students, based on need and academic achievement. In

1924, Harvard, Princeton and Yale entered into the "Big Three Agreement," whereby no financial aid was to be based on athletic ability. But, Yale, Harvard and Princeton were the only institutions with sufficient funds to provide need-based financial aid to all students. Athletic ability became a factor in deciding which students would receive scholarships at other Ivy League colleges.

The NCAA

For the first thirty years of its existence, the NCAA played no significant role in setting limits on athletics scholarships. The NCAA first attempted to regulate financial aid in 1939 when it adopted a "Declaration of Sound Principles and Practices for Intercollegiate Athletics." These principles included the following: aid had to be given through the same process as scholarships for other students, without special set-asides of the proportion of aid going to athletes; aid could not be based on athletic participation and could not be withdrawn for failure to participate; and athletic department funds could not be used for any form of aid other than employment that involved full and honest effort. Although this form of financial aid rule has never been required by the NCAA or practiced by most of its Division I members, it remains the preferred policy of many schools, and periodically has been advocated by some Division I schools up to the present.

Relaxation of financial aid rules by colleges and conferences after World War II led the NCAA to attempt to tighten its rules. In 1948, the NCAA adopted the "sanity code,"

which stated that financial aid for tuition and fees should be on the basis of need, while aid based on scholarship and other non-athletic factors was unlimited as long as it was available to other students. The sanity code included the 1939 principles, and allowed medical care, training table, and meals on sanctioned trips. As reviewed in the discussion of the conferences, the sanity code failed because it was not widely adopted, and in 1951 it was formally repealed.

A year later, the NCAA embarked on a six-year series of small reforms through incremental changes. In 1952, the NCAA adopted a provision outlawing financial aid to athletes from anyone other than the college or the persons for whom the athlete is legally a dependent (normally, parents). In 1953, outside aid that was not based in any way on athletic ability was exempted from the 1952 rule. In 1956, the NCAA adopted rules prohibiting aid that exceeds commonly accepted educational expenses. In addition, it prohibited aid based on performance and the withdrawal of aid due to injury or withdrawal from participation. In 1957, the NCAA adopted rules that limited total athletic aid (including employment) to commonly accepted educational expenditures, which it defined as tuition, fees, books, room and board, and $15 per month for incidental expenses.

In the 1960s, the NCAA tightened its rules regarding employment. First, it set limits for earnings from employment by the university. Second, it prohibited athletes from using their "fame or reputation" to earn income (thereby prohibiting endorsements and paid appearances for non-athletic activities). Third, colleges were permitted to cancel

scholarships if athletes became academically ineligible. Fourth, reimbursements for expenses associated with travel were limited to "actual and necessary" expenditures. Fifth, limits were placed on the number of complimentary tickets athletes were given to events. Sixth, special arrangements to provide benefits that were not available to non-athletes were prohibited. In addition, the NCAA explicitly permitted colleges to provide incidental benefits such as insurance and tutoring.

By 1972 the rules regarding athletic scholarships had evolved to the point at which aid was capped at commonly accepted educational expenditures, which included course-related supplies. Aid could include a work requirement, but earnings from employment were counted against the cap. Athletically-related aid had to come from the college, not an outside entity. And aid could not be cancelled except for academic ineligibility, serious misconduct, or fraudulent misrepresentation.

Between 1973 and 1976, the NCAA made several significant changes to its financial aid rules that fundamentally changed the relationships between athletes and colleges.

An important change in 1973 was that the duration of athletic scholarships was limited to one year. Thus, students could lose their scholarships if they were injured, decided not to participate, or were judged to have insufficient athletic ability to be worthy of an athletic scholarship. This rule repealed the earlier rule that athletic ability and participation could not be the basis for withdrawing an award. Also in 1973, the NCAA

for the first time limited the total number of athletic scholarships that could be awarded, thereby substantially reducing the number of scholarships that were available. In football and men's basketball, the limits were defined as the number of athletes receiving aid ("counters"), while in other sports the limits were defined as a number of full scholarships, which could be divided among students ("equivalencies"). Moreover, for multi-sport athletes, their scholarship must be counted against football if they participate in that sport, or if they do not, must be counted against basketball if they participate in that sport. Finally, in 1973 the NCAA permitted athletes to receive awards from outside entities as long as these awards were not primarily based on athletic participation.

In 1976, the NCAA modified its definition of "commonly accepted educational expenditures" to exclude course-related supplies and incidental expenses, including laundry. This last action created the current difference between the so-called "GIA cap" and the cost of attendance ("COA cap"). As far as direct scholarship aid to students is concerned, this GIA cap has not been changed since 1976. In addition, the one-year scholarship rule was amended to permit the immediate withdrawal of aid from an athlete who withdrew from participation.

Since 1976, the NCAA has made additional changes to its financial aid rules, but these are of secondary importance to the major changes of 1973 through 1976. In 1977, the NCAA permitted athletes to receive federal Basic Educational Opportunity grants (now Pell grants), but required that these grants be counted against the cap on total aid. Bob

Timmons, the track and field coach at Kansas in the 1980s, characterized this policy as "Robin Hood in reverse... We steal from the poor and give it to the athletes who couldn't qualify for the Pell grant." In 1978, the NCAA allowed Olympic athletes to receive compensation from the U. S. Olympic Committee (USOC). The USOC subsidies include compensation for financial loss that is created by giving up employment to prepare for Olympic competition. In 1979, the NCAA further tightened financial aid rules by prohibiting special discounts or payment arrangements, interest-free loans, bond guarantees, use of an automobile, transportation to and from a summer job, special services like laundry without charge, special benefits associated with off-campus housing, and co-signing a note.

The NCAA has made several changes to its its financial aid rules since 1969, but few are significant and none compares to the changes of 1973-1976. The notable changes are as follows.

In 1982, when Basic Educational Opportunity Grants became Pell Grants, the NCAA allowed the sum of financial aid plus Pell Grant to exceed the GIA cap, but set limits that applied only to Division I. This limit was $900 (or the amount of total aid permitted by the government) in 1982, but was increased to $1400 in 1988, $1400 or COA in 1989, $1700 or COA in 1990, and $2400 or COA in 1993. In 1996, all limits on Pell Grants were removed. The implication of the last change is that if the gap between COA and the GIA cap is small enough and the student is poor enough, aid can exceed COA;

however, for this to be the case, the student's family must be incapable of providing any significant support for ordinary living expenses.

In 1989, the rules were changed to establish greater clarity and somewhat to broaden the ancillary services that could be provided to an athlete. Among these were: (1) support services: use of computers, attendance at proceedings related to eligibility or arising from participation, and costs of field trips; (2) medical services: special expenses due to permanent disability that prevents athletics participation, eye care, eating disorders, and medication and treatment for injuries for the purpose of enabling future participation; (3) room and board: preseason, vacations, post-game snacks; (4) friends and relatives: attendance of spouse and children at post-season events, transportation of spouse and parents in case of life-threatening injury or illnes, and transportation of spouse, parents and teammates to an athlete's funeral; (5) entertainment: actual and reasonable cost of entertainment while on the road; and (6) travel: per diem and cost of passports for foreign travel, actual and necessary travel expenses for awards meetings, goodwill tours, local media appearances and functions, promotional, educational or charitable activities, per diem allowance for post-season events, and travel home from post-season events during vacation. In addition, athletes can keep team apparel after participation.

In 1990 dental exams were added to the list of medical services, and in 1991 dispersals from the NCAA's special assistance fund were added to the list of potential sources of additional financial assistance. In 1995, the NCAA permitted reimbursement of

travel expenses in connection with the death or life-threatening illness or injury of a member of the immediate family. The NCAA added Americorps benefits to the income an athlete could receive in 1996, welfare benefits in 1997, and, in 1998, the NCAA allowed students to receive up to $2000 in employment income per academic year. In 1997 the NCAA also permitted reimbursement for membership fees in sports organizations that require membership as a condition of participation in an event in which the student represents the school.

The changes in the NCAA financial aid rules since 1976 allow extremely poor students to receive more than the GIA cap from government assistance, employment, and special NCAA programs, and to permit schools to provide an array of medical services to students, including physical exams, eye care, dental exams, and treatments necessary to enable participation or to deal with career-ending injuries and illnesses. Most of the other changes are part of a gradual expansion of travel allowances associated with participation or family emergencies, although athletic scholarships still can not cover regular travel between home and campus. Athletic scholarships also still can not cover academic-related expenses other than required books, use (but not purchase) of computers and software, and field trips.

MARKET DEFINITION

This section undertakes an economic analysis of the relevant markets that pertain to

this case. I first discuss the principles of market definition. I then apply these principles to the markets that contain the sale of education services to Division IA football players and Division I basketball players and that include Division IA football games and Division I basketball games.

Principles of Market Definition

The conceptual foundations for defining a relevant market are set for in the *Horizontal Merger Guidelines* of the Antitrust Division of the U. S. Department of Justice and the U. S. Federal Trade Commission. The purpose of market definition analysis is to determine the smallest group of products (defined by their qualitative attributes and geographic location) that profitably could be monopolized. Profitable monopolization refers to the circumstance in which if all the products were sold by a single supplier, that entity could set price significantly above average cost, which is the price that would prevail in a competitive market.

The economic concept that is used to identify a relevant market is the principle of substitution: two products are in the same relevant market if they are sufficiently close substitutes that a small increase in the price of one good relative to the other would cause a large enough number of customers to switch purchases so that the firm with higher relative prices would be unable to capture additional profits. Of course, in some cases the product offered by a single seller is in a distinct relevant market because no other products are

regarded as reasonable substitutes by its buyers, in which case the seller possesses monopoly power. In other cases, very few products may compete (say, five or fewer), but not sufficiently vigorously to prevent each seller from enjoying market power. In these cases, the products will be included in the same relevant market if a merger among their sellers would cause prices to be even higher, even though a seller enjoys some market power in the absence of a merger.

The task of defining a relevant market begins with a reference product, and then asks which other products are its closest substitutes and whether they are close enough substitutes to cause the supplier of the reference product to behave in a competitive fashion. Economists normally begin the process of market definition by considering the function and technical description of a product and its closest plausible substitutes. The usefulness of this information is to focus the inquiry on the products to be considered. In the end, whether products are in the same market is not simply a matter of functional definition and technical description, but whether customers regard the products as sufficiently close substitutes that a small change in the price of one product would cause them to switch their purchases to the other. Thus, the process of deciding which products actually are competitive substitutes is fact driven, and continues until the next nearest plausible substitutes can be shown to have little or no competitive effect against the reference product.

As outlined in the *Merger Guidelines*, the principle of substitution applies to both

demand and supply responses to a change in relative prices. *Demand substitution* refers to actions by consumers to switch purchases among products that already are in the same relevant market. *Supply substitution* refers to the circumstance in which new suppliers enter a relevant market, either by shifting sales efforts from one geographic area to another, or by changing their product lines to produce the relevant product. Of course, both forms of substitution involve both demand and supply effects. In both cases, some producers must be able to produce more output of the relevant product, and some consumers must be willing to switch consumption to either a product that is already in the market or that will enter the market in response to an increase in the price charged by one or more incumbents in the relevant market.

According to the *Merger Guidelines*, products are in the same relevant market if joint price-setting by the producers of these products, such as through collusion or merger, would enable the producers to sustain a small but significant non-transitory increase in prices (SSNIP). The relevant market contains the reference product and the smallest number of products that could sustain a SSNIP if jointly sold. Conversely, if a single seller, in response to growing demand, is able to sustain a profit-increasing price increase without experiencing loss of sales to producers of other products, then the other products are not in the same relevant market. Thus, market definition must confront the issue of pricing: how prices of different products are set and affect each other.

The *Merger Guidelines* list the kinds of evidence that bears on defining the relevant

market. This evidence includes whether buyers shift or consider shifting purchases in response to changes in relative prices, whether sellers base business decisions on the prospect of buyers shifting purchases in response to relative price changes, the nature and extent of downstream competition in the buyers' output markets, and the costs of switching products.

Economists have developed several methods for implementing the concepts of market definition that are set forth in the *Merger Guidelines*. In market definition, the basic fact that economic analysis seeks to uncover is the cross-elasticity of demand between the reference product and other products that are plausible competitors to it. Cross-elasticity of demand measures the extent to which a change in the relative price of one product affects the sales of another product. If cross-elasticities of demand are high, an attempt by the producer of a product to increase price will cause a large loss of sales to other products, assuming that the prices of the other products remain unchanged.

Cross-elasticity of demand sometimes can be estimated by econometric techniques. The basic idea is to use statistical analysis to relate the price of one product to its technical features, its marginal cost of production, and the prices of its most plausible substitutes. Unfortunately, detailed econometrics analysis of price behavior is not usually feasible. Estimating the cross-elasticities of demand between a reference product and several other plausible substitutes can be very difficult, and sometimes is impossible. One reason that the task can be impossible is that if all firms in a market engage in price collusion, prices

among competitors do not vary, so there is no information on which to estimate the cross-elasticities of demand among their products. Consequently, economists frequently employ other indicators of the degree of competition between two products to determine whether they are in the same markets.

In industries in which products are standardized and homogenous – an example is No. 5 red wheat – economic theory predicts that all suppliers will charge the same price nearly all of the time, implying that the prices charged by different suppliers will be highly correlated. In this case a functional description of products and their uses is usually sufficient to determine that two products are essentially identical and therefore likely to be competitors if they are offered for sale to the same buyers at the same place and time. A simple price correlation test can be used to confirm that these products are, indeed, close substitutes.

In most markets, products are not identical, but instead exhibit "product differentiation" in that each product has unique features that could cause consumers to regard a particular product as special in that no other product is a reasonable substitute. Economists generally make a distinction between two types of product differentiation: horizontal and vertical.

Horizontal differentiation usually refers to geographic separation of supply. If the cost of transporting goods and customers is sufficiently high, two otherwise identical products will not be in the same relevant market. The reason is that a monopolist at one

location could elevate price above cost but below the cost of transportation without fearing competitive entry. Both higher education services and college sports are horizontally differentiated because transportation costs, whether to attend college or to see a game, can be substantial for a college that is a long way from home.

Vertical differentiation refers to differences in product attributes or qualities. To note that two products have some difference is not sufficient to conclude that two products do not compete. In some cases, products have numerous technical differences, but the cost of innovations that create product variations or the value that consumers place on specific differences in product attributes is low, so the market still is intensely competitive. In other cases, a particular version of the product may be strongly preferred by some consumers, and the cost of creating an equally attractive product may be high, in which case one version of the product could be profitably monopolized.

Most consumer products exhibit vertical product differentiation, and sometimes these differences form the basis of distinctions in definitions of a relevant market. For example, many types of bread are made from wheat flour as bakeries seek to differentiate their products by creating varieties of bread. Whereas consumers might regard the different types of bread as being nearly identical and so near-perfect substitutes, they might also regard some types as being so special that other types are poor substitutes. In a recent case, the Antitrust Division found that a proposed merger would dangerously reduce competition for premium white pan bread in five regions, which implies that producers of other types of

bread were not part of the relevant market. Likewise, the Federal Trade Commission recently determined that a joint marketing agreement between two recorded music distribution companies for three recordings by "The Three Tenors" was anticompetitive because recordings by this group, while being close substitutes for each other, were not sufficiently close substitutes with other recordings to prevent profitable monopolization of Three Tenors recordings.

When two products have similar technical or functional descriptions but also differ in potentially important ways that may make them poor substitutes, the task of market definition is to seek information about the actual feasibility and extent of substitution between them. Whereas econometric estimates of cross-elasticities of demand are the theoretically most reliable method of undertaking this task, data limitations force economists to use several other procedures for deciding whether two products are in the same market.

One potentially useful indicator is the understanding of experienced observers of the industry. Here, the most useful evidence is the opinion of experienced individuals, preferably outside the context of the litigation, as to which products are close competitors of other products. The relevant evidence is not their opinions about market definition, for business executives and their customers are not likely to know the technical requirements for including or excluding a product from a relevant antitrust market. Instead, the kind of information that is useful is a supplier's or a buyer's sense of principal competitors and a buyer's sense of the reasonably close substitutes for a product. Here, the issue is how

colleges identify potential student athletes and which colleges a student athlete seriously considers.

Another useful indicator is the presence of market power. Antitrust analysis separates market definition from market power; however, evidence that a firm has substantial market power is pertinent to market definition. In particular, suppose that several broadly similar products are sold in roughly equal amounts, but that the supplier of one product is able to sustain prices substantially above the marginal cost of production and to earn profits in excess of the competitive level. In this case, the highly profitable product must be sold in a relevant market that contains few other independent suppliers, for if many products were close substitutes, competition would drive the price of the first product to the competitive level.

Application to Higher Education Services for Student Athletes

Market definition begins with the transactions that are the focus of the antitrust complaint. The reference products in this case – the places to start market definition – are the sale of higher education services to athletes whose athletic skills and academic abilities are sufficient for them to be offered an athletic scholarship in Division IA football or Division I basketball.

From the perspective of colleges, there are no close substitutes for either type of student. Colleges that play in Division IA football or Division I men's basketball have

decided to compete at the highest intercollegiate level in these sports. Colleges can not be successful in this competition unless they enroll students who are sufficiently skilled. With very few exceptions, students are not qualified for and do not seek athletic scholarships in both basketball and football, so that a college can not substitute more football players if it has too few basketball players. Likewise, whereas a college may value enrolling students who are skilled in academic subjects as highly as they value skilled athletes, poets are not substitutes for football players or basketball players unless they also are skilled at one of these sports. As a result, the only close substitutes for the student athletes a school recruits in either men's basketball or football are other student athletes with similar skills in the same sport.

The closest potential substitutes for Division IA football players or Division I basketball players are players who have been offered athletic scholarships to colleges in the next lower division. In general, from the perspective of a college, these student athletes are not substitutes for athletes who do not qualify for Division IA football or Division I basketball scholarships because the quality of players in these other divisions is lower. Although occasionally a lower division team will defeat a team in Division IA football or Division I basketball, such upsets are exceedingly rare. Thus, a school that sought to avoid competition at its own level by focusing on players who are not sought by any other Division IA or Division I school would end up with a team at the quality level of a lower division, and so would not succeed in competing against colleges in its own division.

For student athletes, the closest substitutes for attending the college that they have chosen are other colleges that offer both higher education and the opportunity to play the same sport at a similar level of quality. From the perspective of a graduating high school senior who is skilled enough to receive a football scholarship at a Division 1A school or a basketball scholarship at a Division I school, the closest substitutes are other schools of the same classification. Student-athletes who qualify for Division IA football or Division I basketball scholarships cite the level of competition, the prospect of playing in bowl games or the NCAA basketball tournament, and the possibility of playing in games that are televised as among the reasons that they select a college. Lower divisions do not offer any of these opportunities.

The relevant geographic market is limited to colleges in the United States. Intercollegiate sport is rare in other nations, and even where it exists, colleges do not attempt to compete at the same level as Division I. Some student athletes come from other nations; however, they do not have the same opportunities at home to play intercollegiate sports at the highest level, so on the supply side the geographic scope of the market is limited to the United States.

In principle, the relevant markets could be smaller than all Division IA football schools and Division I basketball schools. Colleges differ substantially in their distance from a a student's home (horizontal differentiation), the traditions of their athletic programs and their academic attributes (vertical differentiation). In principle, these differences could

segment the recruitment of student-athletes into several groups of colleges that compete among themselves but not across groups. In practice, however, I have concluded that this is not the case.

A useful place to begin the discussion of horizontal differentiation is the procedures that colleges use to award need-based financial aid. Colleges that provide need-based aid use roughly the same formulas to determine the ability to pay of a student's family for a college education. Each college then calculates its total cost of attendance, including travel costs to and from home (including during winter and spring breaks) and living expenses for students who live too far away to commute to campus. The amount of need-based student aid for which a student qualifies is then the difference between these two numbers. Actual aid can differ from this amount because of budget limitations regarding total aid or sources of aid that are based on merit or other factors. But in the absence of these factors, a student's need and, therefore, financial aid package will be higher if the student faces greater travel costs in attending college. Because some aid is likely to be low-interest loans, students still bear some of the costs of travel, but the aid formula is designed to reduce substantially the extent to which travel costs enter into the decision where to attend college. As a result, conventional need-based aid intensifies the competition between geographically separated campuses.

Students state that one factor affecting their decision is the proximity of the school to home. This factor is similar to the example of hot dog stands that is discussed above.

The fact that students use geographic distance as a factor in deciding where to attend college does not necessarily mean that geographically separated colleges do not compete in the same market. Conferences are geographically distinct, and some schools – say, Penn State in the Big 10 or Texas in the Big 12 – face a different set of nearby competitors than, say, Missouri Valley Conference (MVC) member Creighton in Omaha, Nebraska. But even the smaller, less prestigious MVC schools recruit outside their region. In 2007-8, Creighton's men's basketball team had three players from Nebraska, two players from California, and one player each from New Hampshire, France and Cameroon. Likewise, Bradley has three players from home-town Peoria, but also players from California, North Carolina, Texas and Gambia.

The MVC does not play Division IA football (although some members play IAA in other conferences), so to check the local basis of recruiting for lesser IA schools I examined the football roster of Troy State. I selected Troy State because it only recently joined Division IA, and so seemed more likely to have a primarily local recruiting base, and because it must compete in-state with two powers in Division IA, Alabama and Auburn. Troy State's current football roster includes 38 players from Alabama, 34 from Florida, and 29 from Georgia, plus players from many other states, including California, Hawaii, Kansas, New Jersey, Utah and Washington. Thus, geographic overlap in recruiting territories, some degree of involvement in nationwide recruiting, and geographic distance between competing schools and conferences plausibly integrates the market, even if most

players at most schools live nearby.

Market definition also needs to be based on conditions that would prevail in the absence of horizontal restraints. The importance of geography is accentuated by the NCAA's rules against including travel costs as part of athletic scholarships. One factor that makes location potentially important is the cost of transportation. To the extent that transportation costs are a factor affecting attendance decisions, the cause is the absence of a competitive process that would narrow or eliminate this source of cost differences among colleges.

The analysis of differences in traditions, coaches and academic attributes have the same underlying economics as geographic differences. These differences do not imply different relevant markets as long as the interests of students are not mostly overlapping. If schools that differ in small ways compete, and the identity of the colleges that have similar traits differs among students, then the market for attendance can be fully integrated. In particular, Michigan may not compete directly with Troy State in football or Missouri State in basketball because of these differences, but as long as each competes with others – say, Alabama, Florida and Georgia with Troy State football and Illinois, Kansas and Missouri with Missouri State basketball – then this overlap integrates the market. Of course, whether this is the case is an empirical matter that hinges on whether, in fact, there is competitive overlap in recruiting of Division IA football players and Division I basketball players.

To help to ascertain whether the relevant markets are narrower than all Division IA football schools and all Division I basketball schools, under my direction economists at ApplEcon collected recruiting data from rivals.com for the past five years for all Division IA football players and all Division I basketball players. The data base is the list of all of the scholarship offers that were made by each college in Division IA football and Division I men's basketball. Scholarship offers were collected, rather than all attempts to recruit, because scholarship offers are a definitive commitment by a college. These data permitted the creation of a compilation of overlapping offers, wins and losses for every pair of schools in Division IA football and Division I basketball. These data are provided in Appendix C. Each data entry matches two colleges, and shows the number of student athletes who were offered scholarships at both schools, the number who picked the row university (lower left), and the number who picked the column university (upper right). The number picking one of the two usually does not sum to the total overlap in awards because many athletes are offered more than two scholarships.

The purpose of the foregoing analysis is to show which schools compete directly for players, and on balance how that competition works out. A lack of overlapping scholarship offers reveals minimum direct competition between two schools, but these schools may compete indirectly (like non-adjacent hot dog stands on the beach) because they compete with the same other schools. If the markets are segmented by region or type of school, the data about recruiting patterns will show that one group of schools always

loses recruiting battles to schools in the other group or that two distinct groups of schools rarely make offers to the same students.

The data show that schools do not fall into distinct subcategories with regard to the athletes that they recruit with respect to either geography, historical team quality, or academic standing. As an example, compare the football recruiting patterns of the University of Alabama (a traditional power from a BCS conference) and Troy State (a new Division IA school that plays in the Sun Belt Conference). Table 2 lists all of the colleges that Alabama and Troy State were successful in competing against (that is, a student chose this college over a college on this list when offered a scholarship to both) as well as all of their recruiting losses.

During the last five years both schools have made competitive offers against more than half of the schools in Division IA. Head to head, three students were offered football scholarships to both schools, and all three went to Alabama. But the overall pattern of recruiting shows that they compete with largely overlapping schools. Alabama clearly is more successful in that all of its head-to-head losses are to other members of BCS conferences. But Troy State has won recruiting battles against seventeen BCS colleges, including seven schools against which Alabama has lost recruiting contests. Moreover, the pattern of recruiting is actually more geographically concentrated for Alabama than for Troy State. In the past five years, Alabama has won or lost 45 recruiting battles with cross-state rival Auburn, 29 battles with Florida, 19 with Florida State, 24 with LSU, 29 with

Louisville, 34 with Mississippi, 26 with Mississippi State, 19 with Southern Mississippi, and 24 with Tennessee. Troy State offers are spread out more evenly over the nation. Nearly 70 percent of the players on its current roster are not from Alabama, compared with 42 percent of Alabama's current roster. Because Troy State relies more heavily on players who are not from Alabama, Troy State is affected more than Alabama by the ban on including travel allowances in athletic scholarships.

The results are the same for basketball, in that each college over the past fives years (with few exceptions) has found itself in recruiting battles for students with a long list of other colleges

Table 2:
Football Recruiting Wins and Losses

Alabama			Troy State	
Wins		**Losses**	**Wins**	**Losses**
Air Force	Navy	Arkansas	Akron	Alabama
Akron	Nebraska	Auburn	Arizona St.	Arkansas
Arizona	N. Carolina	Baylor	Arkansas	Arkansas St.
Arizona St.	N. Carol. St.	Clemson	Ball St.	Auburn
Arkansas	Notre Dame	Colorado	Baylor	Ball St.
Arkansas St.	Ohio	Connecticut	Clemson	Baylor
Army	Ohio St.	Florida	Colorado St.	Georgia
Auburn	Oklahoma	Florida St.	E. Michigan	Georgia Tech
Clemson	Okla. St.	Georgia	Florida Int'l.	Iowa St.
Colorado	Oregon	Illinois	Hawaii	Kansas St.
Colorado St.	Oregon St.	Kentucky	Illinois	Kent St.
Connecticut	Pittsburgh	LSU	Iowa St.	Louisiana Laf.
Duke	Purdue	Louisville	Kansas St.	Lo uisville
East Carolina	San Diego St.	Miami, Fl.	Kent St.	Marshall
Florida	S. Carolina	Michigan	LSU	Maryland
Florida Atl.	S. Florida	Mississippi	Louisiana Mon.	Memphis
Florida St.	S. Mississippi	Miss. St.	Louisville	Miami, Ohio
Georgia	Stanford	Missouri	Marshall	Michigan St.
Georgia Tech	TCU	Nebraska	Maryland	Middle Tenn.
Houston	Tennessee	N. Carolina	Memphis St.	Mississippi
Illinois	Tex. El Paso	Notre Dame	Minnesota	Nebraska
Iowa	Texas Tech	Ohio St.	Mississippi St.	N. Carolina
Iowa St.	Troy St.	Oklahoma	Miss. St.	N. Texas St.
Kansas	Tulane	Okla. St.	Nebraska St.	Oklahoma
Kentucky	Tulsa	Oregon	N. Carol. St	Oregon St.
Kent St.	UAB	Pittsburgh	Purdue	San Diego St.
LSU	USC	S. Carolina	S. Florida	San Jose St.
Louisville	UCF	Tennessee	UAB	S. Carolina
Marshall	UCLA	Texas A&M	UCF	S. Florida
Maryland	UNLV	UCLA	W. Virginia	S.

Mississippi

Memphis	Vanderbilt	USC	Tulsa
Miami, Fl.	Virginia	Vanderbilt	UAB
Michigan	Virginia T.	Virginia	UCF
Middle Tenn.	Wake Forest	W. Virginia	UNLV
Minnesota	West Virginia		Vanderbilt
Mississippi			Virginia
Tech			
Mississippi St.			Washington
St.			
			Wyoming

from around the country. I have examine men's basketball recruiting patterns for two MVC colleges (Creighton and Missouri State) and their nearest Big 12 (BCS) competitors, Missouri and Nebraska. Table 3 lists the basketball recruiting victories and defeats for all four schools (as is apparent, there are more recorded recruiting battles for the Nebraska schools than for the Missouri schools). Over the past five years Creighton has had recruiting victories over eleven west coast schools, including Pac 10 members California, Oregon, Oregon State and USC. Missouri State has a more regional focus of recruiting, but has recruited successfully against BCS schools Arkansas, Iowa State and Texas Tech. From the perspective of market definition, the substantial overlaps in recruiting contests of the MVC schools with nearby Big 12 competitors shows that competition is national in scope.

The recruiting data show that schools compete across wide differences in the academic mission and sports traditions of the university. Both the football and basketball data show that smaller private colleges and secondary state colleges compete head-to-head with the most academically prestigious flagship state universities and the most distinguished private research universities. Examples in basketball are Creighton's recruiting victories over California, Northwestern and Washington and Troy State's recruiting victories over Maryland, Minnesota and Nebraska, and four over Illinois. Missouri State has recruited successfully against Arkansas, Iowa State and Texas Tech. Meanwhile, Nebraska has losses to Ball State, Bradley, Nevada,

Table 3:
Basketball Recruiting Wins and Losses

Creighton		Nebraska		
Wins	**Losses**	**Wins**		**Losses**
Albany	Colorado	Akron	San Franc.	Arizona St.
Army	Fresno St.	Arizona St.	San Jose St.	Arkansas
Bowling Gr.	George Mason	Arkan. LR	Seton Hall	Ball St.
California	Idaho	Auburn	Siena	Baylor
Charlotte	Iowa	Bradley	S. Florida	Boston Col.
Denver	Iowa St.	Butler	St. Johns	Bradley
Drake	Kansas St.	Clemson	Tennessee	Clemson
E. Kentucky	Montana	Cleve. St.	Texas A&M	Colorado
Evansville	New Mex. St.	Dayton	Texas EP	Florida
Idaho	Purdue	Duquesne	Texas Tech	Geo. Wash.
Illinois St.	S. Carolina	Florida	Toledo	Illinois
Iowa St.	Texas	Hofstra	Tulsa	Indiana
Loyola M.	Tulsa	Iowa	UAB	Iowa
Missouri	UCLA	Iowa St.	UCF	Iowa St.
Missouri St.	Wisc. GB	Kansas	UCLA	Minnesota
Nevada	Wisc. Mil.	Kansas St.	USC	Nevada
N. Iowa		LSU	UNLV	New Mex. St.
Northwestern		Loyola Ch.	Virg. Tech	N. Iowa
Oregon		Marshall	Wake For.	Oklahoma
Oregon St.		Maryland	Washington	Okla. St.
Penn St.		Memphis	Wash. St.	Pittsburgh
Pittsburgh		Michigan St.	Wisc. GB	Providence
SE Miss. St.		Minnesota	Wyoming	Purdue
St. Louis		Missouri KC		St. Louis
San Diego		Murray St.		Texas
San Diego St.		New Mex. St.		Texas Arl.
San Francisco		Northwestern		Texas Tech
San Jose St.		Notre Dame		Tulsa
Seton Hall		Ohio St.		NC Wilmington
S. Illinois		Old Dominion		Utah
UC Santa Bar.		Oregon		Virginia
USC		Oregon St.		W. Kentucky
Washington		Pacific		Wyoming
Wisconsin GB		Providence		
Wyoming		Rhode Island		

Table 3 (cont'd):
Basketball Recruiting Wins and Losses

Missouri		Missouri State	
Wins	**Losses**	**Wins**	**Losses**
Arizona St.	Arkansas	Arkansas LR	Arkansas St.
Arkansas	Connecticut	Arkansas	Creighton
Austin Peay	Creighton	Indiana St.	Evansville
Clemson	Indiana	Iowa St.	Illinois St.
Fresno St.	Kansas	Lamar	Iowa
Geo. Washington	Louisville	St. Louis	Kansas St.
Houston	Marquette	Texas Tech	Louis Tulsa
Illinois	Michigan	Tulsa	UC Irvine
Illinois St.	N. Carolina		Weber St.
Kansas	Notre Dame		Wisc. GB
Kansas St.	Oklahoma St.		
Kentucky	Purdue		
Oklahoma	St. Louis		
Providence	S. Carolina		
Purdue	S. Mississippi		
Rice	St. Johns		
St. Louis	Texas		
Texas			
Texas EP			
Tulane			
UAB			
UCLA			
UNLV			
Virginia			
Virginia Tech			
Wisconsin-Mil.			

Xavier

New Mexico State, Northern Iowa, St. Louis, Texas Arlington, Tulsa, North Carolina Wilmington, Utah, Western Kentucky and Wyoming. Missouri shows losses to Creighton, St. Louis, and Southern Mississippi.

Many similar comparisons can be made from the tables, and they show that in every region many small schools are recruiting against major schools, and many schools are recruiting against schools outside their region. For market definition purposes, this is sufficient to show that the market is national in scope and cuts across categories of colleges. Not every college has to compete directly with every other college for a single market to exist. In reality, because schools offer fewer scholarships than the number of schools in each division, no school plausibly could compete with every other school at the same time. Instead, the necessary condition is an extensive pattern of overlap in recruiting that it makes it impossible to carve out a group of schools that compete only among themselves. In fact, the recruiting patterns are extensive and overlapping, and no such separation is feasible.

To illustrate the latter point, consider the basketball recruiting data for two schools only a few miles apart: Boston University (BU), a private university in the America East Conference, and Boston College (BC), a member of the Big East in the same region. Boston College competes nationally against numerous colleges that belong to the top conferences that dominate the NCAA basketball tournament. The data show that in the last five years, BC and BU have not made any offers to the same student. But each of these schools has competed directly for the same student with the following schools: Colorado,

Colorado State, Connecticut, Dayton, Duquesne, George Washington, George Mason, Hofstra, Iowa State, Massachusetts, Pennsylvania, Pepperdine, Providence, Rhode Island, Southern Methodist, Seton Hall, St. Bonaventure, St. Johns, Temple, Tulane, UNLV and West Virginia. Only three of these common competitors for students are in New England. The list of their common competitors is national in scope and includes every type of academic institution. These data all support the proposition that there are no subdivisions of the relevant market that are smaller than Division IA for football or Division I for basketball.

More evidence concerning the relevant market is the beliefs of NCAA officials. The efficiency justifications that the NCAA offers for its rules are that they improve competitive balance and reduce costs for struggling programs in Division I basketball and Division IA football. The factual premise of these justifications is that, but for the NCAA's restrictions on financial aid, competition for athletes within these divisions would be more intense. Thus, vertical differentiation among colleges with respect to size, athletic tradition and academic environment does not prevent intense competition among different types of schools.

The preceding analysis deals with competition among colleges in Division IA and Division I. In principle, the relevant markets could be broader than Division IA and Division I. The closest substitutes for an athletically gifted student are either to attend a school in a lower division (say, Division IAA in football or Division II in basketball) or to

become a professional athlete immediately after graduating from high school. Another possibility is that student athletes would elect not to pursue either higher education or athletics.

Examination of the same recruiting data shows that almost no athletes who are offered scholarships for either Division IA in football or Division I in basketball choose a college in another division, and that a larger proportion of students who are offered scholarships decide not to attend college.

In football, the database shows that 12,153 students were offered Division IA scholarships during the past five years. Of these, 89.6 percent enrolled in Division IA, 3.3 percent enrolled in Division IAA, 0.3 percent enrolled in Division II, 0.3 percent enrolled in junior college, and 6.5 percent apparently did not play football anywhere (they could not be found on a college roster or on a Google search of their name).

In basketball, the database lists 4,396 students who were offered Division I scholarships. Of these, 93.5 percent enrolled in a Division I institution, whereas 0.6 percent enrolled in Division II, 0.1 percent enrolled in junior college, and 5.8 percent apparently did not play college basketball at any level. For the most part, other divisions do not even attempt to compete for athletes who are offered Division I scholarships. In five years, only 43 students (one percent) were offered basketball scholarships to schools from both Division I and Division II, and only 6 (0.1 percent) were offered scholarships to both Division I and junior college. Among students who were offered a Division IA football

scholarship, 956 (7.9 percent) were offered a scholarship by in Division IAA, 55 (0.5 percent) in Division II, and 45 (0.4 percent) to a junior college. Thus, these other alternatives are not major competitors for Division IA football players or Division I basketball players.

With respect to professional opportunities, the National Football League does not allow athletes to play professionally until they are 21 years old or have completed their junior year of college, and so is not an alternative for high school students who are offered Division IA scholarships. The National Basketball Association no longer drafts high school students, but it drafts all levels of college students. When students become old enough to qualify for the NBA or the NFL, the high salaries obviously are attractive; however, nearly all college athletes, whether Division IA or Division I, are not sufficiently skilled to have a pro career, much less before they graduate. While there are over 4,000 scholarship basketball players, the NBA has openings for only about 100 new players each season. In 2007, 32 college students made themselves available to be drafted. Of these, 27 were drafted before completing their college eligibility, eight of whom were freshmen. Thus, I conclude that none of these alternatives are close enough substitutes to attending a Division IA football school or a Division I basketball school to be in the same relevant market.

For these reasons, I conclude that the relevant markets are higher education services for Division IA scholarship football players and Division I scholarship basketball players.

Application to College Basketball and Football

The plaintiffs allege that Division IA college football and Division I college basketball are relevant markets. Whereas I believe that this allegation is correct, I also believe that in this litigation identification of the relevant markets for these products is not important. The plaintiffs have not alleged that the NCAA has engaged in anticompetitive conduct in these markets, and the plaintiffs' damages do not depend on whether the NCAA has market power in these markets.

The proper economic method for analyzing the relationship between the markets for college attendance by student athletes and the markets for college sports is to use monopsony analysis – the case of a single buyer of an input. Although the members of the NCAA are sellers in both the markets for higher education services and the markets for sports, the arrangements in the former market affect the costs of participating in the latter because the buyers in the higher education services markets – the student athletes – are also inputs in the sports markets.

If sports markets are competitive, either because the NCAA has no effect on competition among colleges within narrow markets for men's Division I basketball and Division IA football, or because college sports competes with other sports and entertainment, then no college or group of colleges exercises substantial market power in a sports market. But if colleges do exercise market power in the markets for student-athletes,

the effect of this market power is to lower their input cost in producing sporting events by raising the price of college attendance to student athletes. Qualitatively, the effect of raising the price in the market for student athletes is to reduce the number of student athletes who are offered scholarships. By so doing, the exercise of market power in the markets for student athletes reduces supply by NCAA members in the markets for the sports in which these student athletes compete. Regardless of the structure of the markets for sports, supply by NCAA members is reduced.

Whether to some degree that supply is compensated by others depends on how broadly sports markets are defined. If the relevant markets are just Division IA football and Division I men's basketball, then there is relatively little compensating adjustment by others because they are not close substitutes. If the relevant sports markets are much broader than just Division IA football and Division I men's basketball, then others will substantially increase supply in response to a reduction by the NCAA. In any case, the effect on the relevant markets for higher education services is the same: fewer students purchase higher education services, fewer high-quality players participate in the corresponding sports, and so the NCAA's output in these sports is reduced. The key point is that whether a firm benefits financially from monopsony in an input market does not depend on the state of competition in the corresponding output market. For this reason, identifying and characterizing the final output market is not essential to determining whether the input market has suffered anticompetitive harm.

Notwithstanding this analysis, I will provide my reasons for believing that Division IA football and Division I men's basketball are distinct relevant markets. One reason is that NCAA officials believe that college sports is unique because it is an amateur sport played by students and has linkages to the traditions of a college. The second reason is the result of an analysis of the financial records of Division I men's basketball and Division IA football.

To ascertain the relevant markets for IA football and Division I men's basketball requires recognizing that a college sporting event produces a joint product: a game for which tickets and other products (concessions, parking) are sold, and a game that can be broadcast. Once a game has been produced, the cost of making the match available for broadcast is extremely low. All the teams must do is to provide space that is adequate for viewing and reporting the contest. Providing space is costly to the extent that it could be used to sell more tickets and to the extent that additional expenditures must be made to make the space useful to broadcasters.

In circumstances in which firms produce joint products, it is conventional to analyze the joint products as in distinct relevant sub-markets. The reason is that from the perspective of consumers, the joint products rarely are close substitutes. For example, a fan in Los Angeles who is watching the Michigan-Notre Dame game on television would be extremely unlikely to attend the game in person if it were not offered on television because of the transportation cost and time that would be required to do so. The issue of whether

locally televised games substitute for attendance is less obvious, but considerable research in economics shows that in all sports, including college sports, televising games has very little effect on attendance.

Here I will not focus on the sub-market for live attendance except as follows. These markets tend to be local in that most fans who attend a game either live near the facility where it is being played or are avid followers of the visiting team who, for the most part, live near the home facility of the visitor. In Division IA, these local markets rarely include more than one IA football program, and never more than three, so whether these markets are competitive turns on the degree to which other sports and recreation activities are close substitutes for IA football. In Division I basketball, some local markets have several teams and so are structurally competitive even if men's Division I basketball has no close substitutes. In other cases, such as many state universities, Division I colleges are located in isolated college towns and so face little or no attendance competition from other Division I men's basketball programs. Whether these programs have market power depends on whether Division I men's college basketball has close substitutes. On the other hand, these local monopolies tend to be small, and so may or may not be more lucrative than more competitive larger markets.

My main focus is on broadcasting, primarily because the evidence here is clear and simple. Television markets are clearly national in scope. All Division IA football conferences and Division I conferences in men's basketball have some nationally televised

games. The post-season bowls and basketball tournaments guarantee this outcome because these events include all conference champions, and all bowl games and post-season basketball games have national television contracts. As documented above, post-season Division IA football and the men's Division I basketball championship tournament generate television revenues that are far in excess of the costs of staging those events. The presence of enormous market power is evidence in favor of a narrow market definition, and in this case supports the conclusion that at least post-season Division IA telecasts and Division I games are distinct relevant sub-markets in the relevant markets that include Division IA football and Division I basketball.

MARKET POWER

Market power is the ability to control price or exclude competitors. By this definition, the NCAA has market power in the relevant markets for higher education services because it sets the price for college attendance by student athletes and has the power to exclude from this market any college or student who is found to violate its rules regarding financial aid. This section reviews the methods economists use to detect market power and applies these methods to the NCAA's financial aid regulations.

Measures of Market Power

Economists use several methods to determine whether firms possess and exercise

market power. Among the statistical indicators of market power are market concentration and profits. In addition, economists look for direct evidence that firms exclude competitors or control price.

Concentration

The conventional measure of concentration is the share of sales or production capacity of the largest firms in an industry. The most commonly used measure is the Herfindahl-Hirschman Index (HHI), which is the sum of the squares of the market shares of all the firms in a relevant market (that is, a market that includes all close substitutes for a reference product). Thus, in a market with five firms of equal size, the HHI is five times 20^2 or 2000. Economists generally agree that if the HHI is substantially below 2000 and if the market share of the largest firm is below 40 percent, the market is likely to be reasonably competitive; however, as either the HHI or the share of the largest firm increases beyond this level, firms in the market are increasingly likely to compete less vigorously and to enjoy market power.

An important factor influencing whether market concentration leads to market power is whether barriers to entry in the market are high. Barriers to entry are sources of fixed costs and market uncertainty, especially if these factors apply only to entrants and not to incumbents. A classic example is a blocking patent, which prevents any firm from producing the same product as the incumbent until the patent expires or until the entrant can

successfully complete a research and development program that "invents around" the blocking patent. Thus, high market concentration combined with high barriers to entry are regarded by economists as valid indirect proof of the presence of market power.

In the absence of NCAA rules restricting the amount of financial aid, the relevant markets for student athletes would be structurally competitive in that it would have low measures of concentration. According to the NCAA's web site, Division IA of the NCAA had 119 members in 2008, with the 120th member, Western Kentucky, scheduled to join in 2009. Division I contained 336 members in 2008. NCAA rules limit every Division IA school to 85 football scholarships and all Division I schools to 13 basketball scholarships. Colleges typically use all or nearly all of their allotment. In some cases, scholarships may become vacant if a player loses eligibility, turns professional after the season for recruiting scholarship athletes has passed, transfers to another school late in the year, or has a scholarship revoked, or if during and after a season a team loses more than 25 players, which is the limit on the number of new scholarships than can be offered. Colleges do not offer partial scholarships in Division IA football or Division I basketball. The reason is that these are "counter" sports – in these divisions only, the limit on total scholarship players equals the limit on total full scholarships, as compared to Division IAA, in which a college can have 85 scholarship football players but can offer the equivalent of only 63 full scholarships. Given that all schools are at or near the cap on scholarships, the share of each school in each relevant market for higher education services is the same. Thus, the relevant

market structurally would be highly competitive in the absence of a common agreement among the member schools to abide by NCAA rules. Even if each conference were to adopt common rules for athletic scholarships, as was true before the NCAA began regulating financial aid in the 1950s, no conference would be large enough to exercise market power, as the largest basketball conference contains 16 members (less than 5 percent market share) and the largest football conference contains 12 members (slightly more than 10 percent market share).

The conclusion is very different if one focuses on the NCAA as the entity that sets the price for higher education services for student athletes. In determining the terms for financial aid, all colleges in each division act in unison as if they were a single, merged entity, each charging the same price. In this case, the market is a monopoly, with the NCAA members collectively having a market share of 100 percent.

The barriers to entry in Division IA football and Division I basketball are primarily institutional. Among the requirements for Division I are that schools abide by the rules of the NCAA, schedule most of their games against schools in the same division, sponsor a minimum number of sports for men and women, play a minimum number of games in those sports, offer a minimum number of scholarships, and, in IA football, average 15,000 attendance at home games. The key point is that members of each Division are not permitted to play games against colleges that are not members of the NCAA. Hence, if a college decided not to abide by the NCAA rules, it would have no other Division I schools

to play unless it could convince enough schools to abandon the NCAA along with it. This issue is discussed more extensively in the section on the power of the NCAA to exclude competitors, but suffice to say here this barrier to entry combined with the 100 percent market share of the NCAA in big-time college athletics combine to give the NCAA members market power in setting the terms for financial aid.

Profits

In the case of the NCAA and colleges, profits are not a particularly useful measure of market power. While the NCAA and its member institutions generate enormous revenues in Division IA football and men's Division I basketball, these revenues, even if they substantially exceed the cost of staging these sports, do not necessarily generate profits for two fundamental reasons: non-profit status, and unregulated competition for other sports inputs, notably coaches and athletic directors.

The NCAA and its member institutions are non-profit entities. As such, if profits do emerge, they are quickly dissipated in additional expenditures. Formally, colleges are organized to serve public purposes, such as education, research and community service, but practically speaking they are businesses that have many of the properties of a labor-managed firm that seeks to maximize the welfare of its tenured faculty and other senior personnel. Universities lack stockholders, and so have no reason to maximize efficiency for the purpose of delivering value to equity owners. Instead, universities seek to increase

revenues for the purpose of increasing expenditures, either by raising the salaries of current employees, expanding operations, or attracting even better faculty who will increase the prestige of the institution – and thereby further increase revenues through new grants, donations, and student enrollment. For this reason, universities are not likely to have accounting profits for very long, because their purpose is to spend money, not to make it. Applied to the department of athletics, the implication is that if sports become more profitable, the response is likely to be at least in part to expand offerings in athletics and physical education and to increase spending on the profitable sports.

The profitability of sports operations is further compounded because athletics is not just a business, but part of the educational and community service roles of the university. Departments of athletics manage extensive facilities for intramural sports and frequently offer an array of physical education activities, ranging from conventional sports to exercise, fitness and nutrition classes. Moreover, these facilities and activities are not necessarily limited to students, but also at some colleges are made available to faculty, university staff, and even members of the local community.

Colleges are required to make financial reports to the U. S. Government according to the Equity in Athletics Data Analysis (EADA) program. The federal government requires that these reports allocate all revenue in each sport to a cost category so that revenues equal costs for each athletic activity, whereas the NCAA, which requires its members to submit basically the same data, does not require a balancing. The difference

between the two is that the government recognizes that one form of revenue for a sport is budget allocations from either the department of athletics or the central university administration, while one form of cost is overhead contributions of a sport to either the department of athletics or the central administration. The NCAA sees these flows of revenues as subsidies – one sport subsidizing another, or the university subsidizing sports. The government's approach is more consistent with how universities actually operate.

The primary sources of income to a university are, roughly in order of importance, tuition and fees, state government appropriations, federal research grants and contracts, and donations (gifts, income from endowments) from private individuals, corporations and foundations. Intercollegiate sports generally are less important than these items. The two largest sources of revenue are payments for the overall operation of the university, including all of the departments. Contracts and donations frequently are restricted in that they go to individual faculty or departments, but expenditures from restricted grants and gifts usually are taxed by the central administration for reimbursement of indirect costs – that is, the overhead operating expenses for buildings, maintenance, libraries, and administration. These overhead revenues are then recycled into the university's general operating budget, which in turn is allocated among all of the operating units of the university, including the department of athletics and other academic schools and departments.

At all but the most prestigious research universities, tuition plus state appropriations

account for most revenue, so that most of the budget of each department comes from funds provided by the central administration. Tuition and state appropriations are payments to the university for all activities that it undertakes. Rarely do universities charge students on a per-course basis, and even when they do, these payments do not go to the faculty member or the department that is offering the course. As a result, departments cannot show a profit from the services that they provide to students and others because departments do not directly collect revenues for these services. An element of tuition, then, is payment for access to courses and activities throughout the university, including the activities of the department of athletics. It makes no more sense to think of an appropriation to the department of athletics from tuition payments as a "subsidy" than it does to regard the annual budgets of the departments of English, physics and economics as subsidies. All units receive payments for services rendered to the university community.

The main complexity offered by college scholarships is that the department of athletics pays tuition for student-athletes. These athletes pay the same tuition as other students, and have the same access to university activities as other students (unless the coach prevents it), including activities offered by the department of athletics. Thus, part of tuition is a payment for athletic activities, and it is not surprising that some tuition payments are then allocated to the department of athletics. The existence of these payments does not constitute proof of a subsidy, but instead is the natural consequence of how universities manage their finances.

University budget procedures cause the true profitability of any activity to be very difficult to estimate. To do so requires allocating university income to its source. While this procedure is easy for research contracts and restricted donations for supporting a particular area of education and research, it is very difficult for most revenue – tuition, state appropriations, and general donations. To accomplish this task requires knowing what fraction of revenue arises from the reputation of each component of the university, the willingness of students to pay for each of these activities, and the detailed motivations of state government officials in making appropriations for higher education. While some research has attacked this issue for athletics and is discussed below in the section on the ability of the NCAA to exclude competitors, even this work is crudely approximate at best. The main lesson is that estimating the profits of a subdivision of a non-profit institution is a fool's errand.

The second problem about the profitability of Division IA football and men's Division I basketball is that the only costs that are capped are those involving student athletes, through limitations on recruiting visits, financial aid, and indirect expenditures on athletes. In particular, the salaries of coaches and athletic administrators are not capped, and competition in the market for these personnel transfers the financial benefit from caps on paying students to the salaries of coaches and administrators.

To understand why suppression of financial aid leads to higher salaries for coaches requires application of the economics of input markets. Colleges compete intensively for

coaches, and the most successful coaches in both men's Division I basketball and Division IA football are paid millions of dollars per year. The source of these high salaries is the extra value that a good coach brings to a program. The market for coaches is like any other unregulated market for inputs, including Nobel Laureates. Bidding causes coaches and Laureates to go to the university that values them most highly, and one component of a coach's value is the net revenue that he will generate for the department of athletics.

Coaches are valuable in part because they possess skills in teaching a sport, developing the abilities of student athletes, and creating strategies and tactics for the team, but the success of all this hinges on the quality of the athletes that they recruit. Each athlete can be thought of as potentially making a contribution to the team's success that has some value to the college, say V. While every athlete may have a different value, for simplicity of exposition assume that V is the value of "star" football player, v is the value of an "ordinary" scholarship football player, the number of stars is much larger than 85 but far fewer than 85 times the number of DIA schools, and the number of ordinary football players is sufficiently large that all DIA schools can fill their rosters with them.

To recruit an athlete, a school must make recruiting expenditures R and offer a scholarship, which is capped at F. If a school recruits x stars, the net value of its recruitment effort is then given by $x\mathrm{V} + (1-x)v - 85(\mathrm{R}+\mathrm{F})$. If a coach succeeds in recruiting a star athlete, the net benefit is $\mathrm{V} - v$. The value of a coach to a team, then, includes the net value of all of the star athletes he recruits but that a substitute coach could

not recruit.

Ignoring differences in teaching skills, the difference between a great coach and an ordinary coach is the difference in these net values of the players that they can recruit. Assume that a few coaches can recruit x stars each, but the rest of the coaches can only recruit y stars, where $x>>y$. Then competition among universities for coaches will cause the salaries of the top coaches to be driven up to $(x-y)(V-v)$. Thus, when Florida competed to woo Urban Meyer from Utah, all schools that aspired to be a big-time football power were willing to bid up to $(x-y)(V-v)$ for Meyer. Of course, in reality, there are more than two types of coaches and two types of players, but the basic logic is the same. Coaches who can recruit more blue-chip athletes will be made in proportion to the excess value of their athletes over scholarship and recruiting costs. Consequently, to the extent that NCAA scholarship rules suppress payments to student-athletes, the value of those athletes to their schools is increased, which then causes coaches to be paid more. A similar line of argument applies to the director of athletics, who is responsible for making the organization and facilities of the department of athletics conducive to the success of a big-time athletic program. The salaries of the more skilled directors of athletics will be higher because they will attract the coaches who can maximize $85(Vx + v(1-x) - R - F)$. The major insight from this discussion is that a reduction in F (such as the removing incidental expenses and travel from NCAA scholarships) causes higher salaries for coaches and athletic directors, which offsets the direct financial benefit to the university from lowering F.

The preceding argument is theoretical. Whether it is quantitatively significant can not be determined by theory. The EADA data reveal that coaches are huge beneficiaries of big-time college sports. Under my direction, economists at ApplEcon collected EADA data for several sports for all colleges in both plaintiff classes for 2001, 2002 and 2005. Because not all colleges report all items in all years, schools with missing information in 2005 or either 2001 or 2002 have been dropped. For the rest I have examined average expenditures over the past four or five years (in different periods different colleges report all of the data) for financial aid, recruiting, and salaries and benefits of coaches for football, men's basketball, women's basketball, baseball and women's volleyball.

Table 4 shows expenditures in 2005 as a percentage of expenditures in 2001 and 2002 for these categories of expenditures in these sports for all members of Division IA for which data were available in both years being compared. These schools correspond to the football class. The 2001-2005 and 2002-2005 comparisons are not comparable because of differences in which colleges are included in each group.

The data show that there were no systematic differences among the sports in changes in either financial aid or recruiting expenses. But coaching salaries went up substantially more for men's basketball than for any other sport, and more in football than any of the others. Among the five sports, the one that generates the least revenue is women's volleyball, and in that sport coaching salaries ands recruiting expenses went up the least, while grants-in-aid rose as fast as the other sports (and faster than basketball).

Table 5 shows the same data for all Division I colleges that are in the men's basketball plaintiff class, but eliminating football. Again, the data do not reveal any systematic differences in the rate of growth of aid, but they show that basketball coaches salaries rose by 80 percent between 2001 and 2005, which is between 30 and 45 percentage points more than the increase in the other sports. Men's basketball is the beneficiary of the rapid rise in income from the NCAA

Table 4:
Percentage Change in Expenses by Sport
Division IA

Sport	Expense	2005, as % of 2001	2005, as % of 2002
Football	Dollars of aid	142.6%	132.9%
	Recruiting Expenses	129.4%	126.6%
	Total coaching salary + benefits paid by university	164.8%	146.4%
Men's Basketball	Dollars of aid	133.9%	133.2%
	Recruiting Expenses	133.6%	125.2%
	Total coaching salary + benefits paid by university	184.8%	168.0%
Baseball	Dollars of aid	141.7%	129.6%
	Recruiting Expenses	129.0%	126.0%
	Total coaching salary + benefits paid by university	156.6%	145.7%
Women's Basketball	Dollars of aid	138.7%	128.3%
	Recruiting Expenses	132.1%	124.7%
	Total coaching salary + benefits paid by university	149.0%	136.6%
Women's Volleyball	Dollars of aid	141.3%	128.8%
	Recruiting Expenses	115.5%	121.6%
	Total coaching salary + benefits paid by university	136.6%	128.8%

Source: EADA. The sample includes 90 colleges in 2001-2005 and 92 in 2002-2005. Two universities (Arkansas State, Louisiana Monroe) appear only in 2002-2005, and one (Miami, Ohio) only in 2001-2005.

men's basketball tournament, and the data support the conclusion that men's basketball coaches will capture substantial benefits from this windfall.

To clarify what has happened to coaching salaries, Table 6 contains average salaries for Division IA schools in football and colleges in the plaintiff class of Division I for basketball. In the five years between 2001 and 2005, average football coaching salaries increased by more than 1.2 million dollars in the six conferences that are members of the BCS group, with no conference experiencing an increase of less than one million dollars. For the remaining Division IA schools the increases are smaller, but in every conference average football coaching salary expenses increased by more than $200,000, and the average increase was more than $500,000.

In basketball, where coaching staffs are much smaller, in every conference salaries rose by more than 30 percent, and in some it more than doubled. Among the power conferences – the members of the BCS – average salaries almost doubled in five years. The increases in salaries show that the growth in revenues in college sports is benefitting coaches enormously.

Exclusion of Competitors

The NCAA possesses the power to exclude competitors or otherwise to impose

substantial costs on them if they do not abide by its rules regarding the eligibility of athletes and schools to compete in NCAA sports. Athletes who receive excess financial aid are declared ineligible for play. Because athletic scholarships can be withdrawn if a student does not participate, loss of eligibility can mean the loss of financial aid. A student who accepts pay that violates the NCAA's rules can lose the ability to play sports and so can face a large increase in

Table 5:
Percentage Change in Expenditures by Sport
Colleges in Division I Men's Basketball Class

Sport	Expense	2005, as % of 2001	2005, as % of 2002
Men's Basketball	Dollars of aid	135.4%	132.3%
	Recruiting Expenses	133.9%	127.0%
	Total coaching salary + benefits paid by university	180.4%	164.4%
Baseball	Dollars of aid	142.3%	129.3%
	Recruiting Expenses	132.4%	128.3%
	Total coaching salary + benefits paid by university	150.3%	143.4%
Women's Basketball	Dollars of aid	137.4%	125.8%
	Recruiting Expenses	130.0%	121.8%
	Total coaching salary + benefits paid by university	146.3%	134.5%
Women's Volleyball	Dollars of aid	140.9%	129.2%
	Recruiting Expenses	113.7%	121.4%
	Total coaching salary + benefits paid by university	136.5%	128.1%

Source: EADA data for Division I schools in the plaintiffs' class. The sample includes 111 schools for 2001-2005 and 113 for 2002-2005. The 2001 but not the 2002 sample includes Miami, Ohio, and for 2002 the schools added were Arkansas State, Delaware, and Louisiana Monroe.

Table 6:
Average Expenditures by Sport on Coaching Salaries ($000)

Sport	Conference	Average Spending on Coaching		
		2001	2005	Change
Football	ACC*	1,491	2,789	1,298
	Big 10*	2,099	3,352	1,253
	Big 12*	1,852	3,602	1,750
	Big East*	1,723	3,018	1,295
	Pac 10*	2,013	3,036	1,023
	SEC*	2,061	3,073	1,012
	Conference USA	1,290	1,899	609
	Mid-American	781	1,025	244
	Mountain West	1,182	1,801	619
	Sun Belt	867	1,116	249
	WAC	1,032	1,622	590
	Others	1,514	2,460	946
Basketball	ACC	638	1,574	936
	Big 10	1,002	2,080	1,078
	Big 12	739	1,461	722
	Big East	748	1,309	561
	Pac 10	688	1,255	567
	SEC	826	1,339	513
	Atlantic 10	510	742	232
	Colonial Athletic	382	581	199
	Conference USA	603	988	385
	Horizon League	327	456	129
	Mid-American	316	418	102
	Missouri Valley	390	582	192
	Mountain West	589	876	287
	Sun Belt	331	444	113
	West Coast	344	563	219
	WAC	395	628	233
	Others	322	420	98

Source: EADA data for schools with data for both years. "Others" are independents or schools that changed conferences.

the price of higher education. Assuming that the student is not otherwise inclined to abide by the rules, the expected penalty of accepting disallowed aid is the probability of detection multiplied by the financial cost of being caught. The latter is at least the increase in the price of higher education, and could be as high as the expected effect of college education on lifetime earnings if the loss of aid means that the student no longer can afford college.

The NCAA has the power to limit the participation of a college in the relevant markets for student athletes and the corresponding product markets. Possible penalties include reducing the number of scholarships (reducing participation in a relevant market), prohibiting a particular player from attending the school, prohibiting teams from participating in post-season play (bowl games or the NCAA and NIT basketball tournaments), and the "death penalty" (making a college ineligible to participate in NCAA competition in a particular sport, which in turn means that it can not participate effectively in the relevant market for student athletes in that sport).

Enforcement

One indicator of the NCAA's market power in the relevant markets for student athletes is in its record of enforcing of its rules. The NCAA classifies violations according to their severity. Major violations typically lead to punishments of the colleges, but secondary violations typically lead only to punishment of the athletes, in many cases for financially trivial violations.

Since 1999, the NCAA has taken approximately 1100 secondary enforcement actions against student athletes and member schools involving football or basketball, which means that the NCAA found on average two violations per week. The total page count of violation reports between 1999 and 2006 is 3,587. Both the number of actions and the minuscule violations that give rise to some actions reveal that NCAA enforcement is vigorous, and thereby is effective in forcing colleges to adhere to its price-fixing rules.

For example, the NCAA found that a college had paid "excessive entertainment money when institution did not include the value of snacks and video rentals provided to prospects in entertainment money." The extra benefit was valued at $3, and the students were declared ineligible until they repaid the $3. Here the student, not the college, was punished, even though the mistake was made by the college. A similar case involved paying for pizza for 20 students at a cost of $4.15 each, which again led to the students being required to repay the money in order to remain eligible for athletic participation. In another case, a student-athlete's father, who also was a university representative, took three of his son's teammates to dinner. The students had their eligibility re-instated when they paid for the meal.

In a more serious case involving goods and services worth $702.29, a student athlete's fiancEQ \O(e,'), who also worked in the department of athletics, gave the athlete's father a gift, cleaned the athlete's apartment, typed the athlete's papers, bought food for the athlete, and paid for a trip to Las Vegas for the two of them. When the athlete learned that

these activities were NCAA violations, the couple was married, but nonetheless the athlete lost eligibility for one game and was required to repay the value of these benefits and complete 20 hours of community service. The relationship between the athlete and his fiancEQ \O(e,') was a prohibited extra benefit.

Another violation occurred when a student athlete's car broke down on the freeway. The student had no money, so an employee of the department of athletics let the athlete use a cell phone to call for assistance, allowed the athlete to use the employee's AAA card to arrange towing, and made a loan of $24 for other costs. The athlete paid the employee $25 the next day: $24 for the loan and $1 for the phone call. Nevertheless, these were declared to be impermissible benefits, and the athlete was required to donate $43 (the value of an AAA membership) to a local charity in order to have eligibility reinstated. Finally, an employee of a college paid $9 each for a meal at which the employee sought to encourage two students to join a church. The eligibility of the two athletes was reinstated when each reimbursed the employee $9 for the meal.

The preceding examples are secondary violations, which typically involve inadvertent violations of the rules. Major violations, which are less common, involve a conscious, systematic pattern of rule violations in which the violators are likely to know that their activities are against the rules. Major violations are the main target of NCAA enforcement: "in the case of major infractions, we will be 'tough as nails.'"

An example of a major violation is a case against McNeese State. These violations

involved men's basketball and men's and women's track and field. I focus on the basketball violations since they are the ones that are relevant to the market power of the NCAA in a relevant market. In this case, an assistant basketball coach paid for the transportation and lodging for four prospective students and an existing student, gave two prospective students aid for tutoring, and paid someone to take quizzes and a test for a prospect in a correspondence school math class. The penalties for these violations and the violations involving track and field included: (1) public reprimand and censure (hence the public nature of the document); (2) 2.5 years of probation (the university placed itself on probation as of fall 2006, but the NCAA probation was for two years beginning in February 2007); (3) reduction in financial aid of two GIA equivalencies in track for two years as compensation for the "substantial competitive advantage" gained by the institution from allowing an otherwise ineligible athlete to compete for four years (the athlete was the Southland Conference Cross-Country Student-Athlete of the Year); (4) loss of all points scored by this athlete in cross-country meets; and (5) for men's basketball, a reduction of two in official visits by prospects for two years, a reduction in scholarships of one for one year, and inability to participate in sharing the television revenues of the conference for one year, plus other penalties.

Another major infraction involves Mississippi State football. The issues were excessive payments for visits to campus, impermissible assistance to students in obtaining employment, impermissible educational benefits, and excess financial aid. A prospect was

reimbursed for a rental car and lodging in connection with an unofficial visit to see the traditional rivalry football game between Mississippi and Mississippi State, and his grandparents were given free meals and reimbursements for lodging during his official visit. A football coach facilitated employment for a prospect who was paid $30 for moving boxes for a booster of the program and helped the prospect obtain a job for minimum wages at the shipping dock of a Hattiesburg department store. Another prospect could not afford to pay for additional courses to make him eligible for college. The student was given about $775 for the course, but ended up having to pay only $400 and kept the rest. The students involved in these violations came from poor families and otherwise could not have afforded the activities that were paid for by the university. Three other charges involved impermissible money associated with recruiting – payments of $20 and $30 for entertainment during a visit, and payment of $50 for a pair of athletic shoes. Violations seven and eight involved reimbursements for transportation to prospects of $120.75 and $132.86, respectively, but the prospects actually used cars owned by their high-school coaches. Finally, a team booster allowed two prospects to stay for free in a local hotel that was owned by the booster while visiting the campus. The total value of all of these violations is in the range of $3,000. The punishments included the following: (1) public reprimand and censure; (2) four years of probation; (3) loss of eligibility for a bowl game for one year; (4) loss of four football scholarships for two years; and (5) reduction in the number of allowed official visits for football prospects for two years.

Most secondary violations are minor in that they involve trivial amounts of money and are committed by either outsiders or university employees who plausibly do not know that providing any assistance to an athlete – even rescuing them from an emergency – is a violation of the NCAA's rules and can cause the athlete to be declared ineligible. But even the major violations often are of small financial magnitude. Nevertheless, the NCAA vigorously seeks to stamp out the trivial, and to punish even small major infractions that it deems to be pre-meditated. "The NCAA has nearly doubled the number of enforcement investigators..."

The enforcement data show that the NCAA has the power to cause member schools to adhere to its financial aid rules and has sufficient resources to investigate and punish fairly small violations. As a result, all sellers (colleges) in the relevant markets for higher education services normally follow the NCAA's policies regarding financial aid. Because these schools represent 100 percent of the relevant markets, their collaboration is sufficient to give them market power.

Control of Prices

The NCAA's financial aid rules fix the price of attending college. An agreement to limit the amount of an athletic scholarship is exactly the same as fixing a price. Here the price in question is the net cost of attending college, which is the gross cost minus the value of the financial aid package. Thus a cap on aid is the same thing as a floor on the price.

Price Determination in Higher Education

To understand the nature of the market for higher education services requires explaining with some precision the economic cost of college attendance, which is only partially overlapping with the concepts of cost of attendance that are used by the NCAA. The difference stems from the fact that the true cost of college is the *opportunity cost* of college. This cost has two components. The first is direct financial outlays for attending college (sometimes called the sticker price), and the second is foregone earnings of attending school rather than working.

The NCAA's and the federal government's cost of attendance estimates are approximately the direct cost, with one important modification to room and board. The incremental cost of attending college does not include at least some food, for a student would need to eat regardless of whether the student went to college, worked, or did nothing. Thus, the economic cost of attendance should include only the incremental cost of room and board arising from the institutional provision of these services. But many costs that are excluded from an athletic scholarship should be included in the economic cost of attendance, such as transportation to and from school, parking, school expenses other than tuition, fees and required books, and the difference between laundry expenses at school and the cost of washing clothes at home.

For students who can earn more than the minimum wage upon graduating from

high school, the indirect opportunity cost of higher education can exceed the direct cost. Even at minimum wage, a regular, full-time job for nine months (net of payroll taxes) generates around $8,000 in take-home pay, and pays more if the wage earner is poor and qualifies for the earned income tax credit. By comparison, recall that the cost of attendance at Troy State is about $14,000. Government cost of attendance estimates take this opportunity cost into account only for students who are independent – that is, are not a dependent of a parent or other guardian, and have no source of income to pay for ordinary living expenses unless they obtain employment.

Financial aid is a mechanism for engaging in price discrimination among students. Universities have a sticker price that includes all of the standard direct costs of education. Colleges compete for students from low-income families and for students with special skills (whether academic, artistic or athletic) by offering discounts off of the sticker price. The role that cost of attendance plays is simply in defining the upper bound for certain aid packages that include federal assistance, such as student loans guarantees. But even the federal government does not set a sticker price cost of attendance ceiling for poor students.

From a student's perspective, higher education has a total price, of which the opportunity cost (sticker price plus foregone earnings, with some small adjustments) minus financial aid is the actual cost of attendance. This cost, over four years, is then compared with the benefits of higher education. These benefits fall into three basic categories: short-term consumption, long-term returns in the non-economic quality of life, and long-term

improvements in earnings. The first two require little comment, for they refer to the enjoyment of college life and the subsequent benefits of higher education that arise from a greater understanding and appreciation for the world. For athletes, the enjoyment of participating in athletics and building athletic and personal skills that will be enjoyable in the future are in this category.

Research on the returns to higher education focuses on the third benefit, increased income due to higher education. Most economists who have studied this issue have concluded that the returns to investment in higher education are high – substantially higher than investing the opportunity cost of higher education in standard financial assets, such as common stocks. For most athletes, this payoff is the primary long-term return that they will receive from higher education. For a highly skilled and lucky few, careers in professional sports or in college coaching at the highest level may arise, but for most college athletes their future earnings will depend primarily on the extent to which they take advantage of their athletic scholarship to improve their earning power in non-athletic careers.

Student athletes compete for scholarship offers, just as colleges compete for student athletes. As with any other price, student athlete customers of higher education seek as low a price (high a scholarship) as they can. There is ample evidence that students who are not athletes respond to differences among colleges in the total cost of attendance and financial aid offers. The consensus in current research is that colleges can improve the proportion of

admitted applicants who accept admissions by increasing the generosity of their aid offers.

The remaining issue is whether, in the absence of the GIA cap, colleges would in fact increase financial aid offers to student athletes in the relevant markets. Of course, thirty years ago when the NCAA tightened its rules, these actions were taken to reduce costs. This could not have happened if schools at that time were not providing as much aid as was permissible at that time. But that was thirty years ago, and things may have changed.

Is the GIA Cap Binding?

One piece of evidence that the NCAA exercises market power is the correspondence between financial aid awards and the GIA cap. If many schools offered football and basketball scholarships that were significantly below the GIA cap, the NCAA might not be engaged in widespread exercise of market power because financial aid limits are not a binding constraint on member institutions. In reality, nearly all athletes in men's Division I basketball and Division IA football are given awards at the GIA cap, and those that are given smaller awards typically are students who are injured, have used up their eligibility, or participated for less than a full season. No school has a policy of offering recruits in men's basketball and football less than the full GIA cap. This fact shows that the NCAA rules regarding financial aid are binding on its members, and so represent the exercise of market power.

Another piece of evidence pertains to the value of the players who are recruited. If

players are worth substantially more to a school than the amount of a scholarship, then raising the cap on scholarships in a competitive market for students will cause the value of a scholarship to rise to the new cap. In a series of papers, Robert Brown estimated the value of the very best college athletes to a team. The most recent estimate is that a draft-quality football player generates $495,000 in revenue while a draft-quality men's basketball player generates $1.4 million. To put this into perspective, the latter number is sufficient to pay the difference between the GIA cap and COA for every football player and men's basketball player at a Division IA school with over one million dollars to spare.

Finally, over time the permitted cap on athletic scholarships has changed. The NCAA rule that removed incidental expenses (laundry, school supplies) from the cap on total financial aid went into effect in 1976. As a result, the amount paid in a full scholarship was correspondingly reduced, which illustrates an increase in the exercise of market power by the NCAA and its members. Another source of change in the GIA cap is increases in tuition, which has tended to rise more rapidly than the rate of inflation for several decades. These increases in the GIA cap have led to across-the-board increases in the value of athletic scholarships, which is further evidence that the GIA cap is a binding constraint.

Effect of Aid Limits on Other Input Markets: Coaches

Although the GIA cap and scholarship limits in all sports have been in place for over thirty years, the underlying economics of college sports has changed dramatically. As

documented in the section on the economic history of the NCAA, one big change is the enormous growth in revenue from post-season play. The possibility for greater financial payoff ought to cause colleges to be willing and able to pay more for inputs to college sports. The market for coaches is a competitive market that is not subject to NCAA cost controls in which we can examine whether the growth in revenue has been accompanied by increased spending. The previous section documents the enormous increase in coaches salaries in football and basketball among the colleges that correspond to the two classes.

To put these salary changes in perspective, consider the following calculation. Paying full COA would cost each school, on average, about an additional $3,000 per scholarship. For a Division I men's basketball team, the total increase in aid for all players would be less than $40,000, which is much smaller than the increase in average salaries for men's basketball coaches in all conferences over the past five years. For football, the total cost would be $255,000, which is much less than the increase in coaching salaries in all but two Division IA conferences (and roughly equal to average pay increases in those two). Of course, this is a rough approximation. Travel expenses would account for most of the increase to a COA cap, and schools, rather than athletes, could reduce this cost if they took travel expenses into account in offering scholarships.

The point here is not that coaches are overpaid and so the NCAA should cap their salaries. Instead, the point is analytical. Coaching salaries have grown as fast as they have because revenues have grown, athletic scholarships are capped, and competition, not rules,

determine compensation for coaches, all of which cause coaches to receive increasing rewards for being successful in recruiting athletes who can help the team earn big payoffs in the NCAA tournament or a bowl game. If the GIA cap were raised, coaching salaries would adjust. In similar fashion, if the GIA cap were raised, athletic scholarships would increase to the new cap as long as total spending on athletic scholarships is less than extra revenues a college receives from recruiting athletes in the relevant market.

SOURCES OF MARKET POWER

The ability of the NCAA to exercise market power is derived from two sources. The first is the barrier to entry: a college can not compete at the highest level of intercollegiate sports unless it is a member of the NCAA. The second is the reward to competition in Division IA football and Division I basketball.

The financial and publicity value that is associated with competing at the highest level of competition in intercollegiate sports is substantial. Men's Division I basketball and Division IA football are, by far, the most important college sports in terms of the revenue and the publicity that they generate. As argued above, the members of the NCAA have substantial market power in at least the post-season bowl games and men's Division I basketball tournament. These events generate substantial revenues for NCAA members that far exceed the cost of participation. Successful participation in IA football or I men's basketball generates substantial revenues in excess of costs, which typically are used to pay

for other athletic activities. For example, in 2004, every conference received at least $845,783 dollars from the men's basketball tournament, and the power conferences – ACC, Big East, Big 10, Big 12, Pact 10 and SEC received between $9,867,470 (ACC) and $13,250,602 (Big 10). Revenues have risen since then.

One cost that is covered by athletic scholarships is tuition, which contributes to the support of other academic activities. In addition, the publicity surrounding participation at the highest level of intercollegiate sports is widely regarded as important to attract applications for admission from students who do not participate in these sports. The increase in applications allows schools to improve the quality of the students they admit and successfully to raise tuition, or to increase their revenues by adding more students. These payoffs from participating in Division I basketball and Division IA football give the NCAA the leverage to enforce its rules regarding scholarships for student athletes.

The effect of athletics programs on applications to colleges and the average quality of students has been extensively studied. The first issue is whether applications increase. Here the results are that recent success in basketball and football cause an increase in applications and acceptances of admission. These results show both a short-term impact that dissipates over a few years from winning a national championship and a long-term impact arising from a history of fielding strong teams or participating in a major conference.

The second step is whether an increase in applications causes an improvement in the quality of students. Here the evidence is more ambiguous, as one would expect since

schools can respond to increased demand in three ways: raising prices (tuition net of aid) to achieve the same target student body size; increasing the size of the student body while keeping tuition and admissions standards the same; and keeping tuition and student body size the same while raising admissions standards. Only the last response would increase the quality of the student body. In any case, the most recent work indicates that college football success produces a positive effect on student quality, but college basketball success does not. This finding is plausible because Division IA is much smaller than Division I, and the members of Division IA include most of the largest and most prestigious state universities, which typically are at enrollment caps and which have politically determined tuition rates. Hence, these schools are more likely to respond to an increase in demand by raising standards. By contrast, Division I contains a large number of small private colleges and secondary state universities, which are less likely to be at enrollment caps and so more likely to respond to an increase in demand by increasing admissions.

Tertiary questions that have been addressed by researchers are whether big-time sports affect graduation rates or donations to the university. Little work has been done on graduation rates, but apparently the effect of big-time sports is to reduce graduation rates. Whether this is due to the diversion of time for sports or the increase in enrollments arising from big-time athletics is not clear. With respect to donations, researchers agree that the effects are small, although they disagree as to whether the effects are positive or negative.

For purposes of this litigation, the research literature is consistent with many

anecdotes from college leaders who have led their colleges into Division I or IA – that doing so has advertising value for the university. The clearest evidence of an effect is on applications and acceptances of admissions, both of which benefit the university by enabling it to engage in some combination of greater enrollment, higher prices, or higher student quality, depending on its specific conditions. These effects give the NCAA the power to enforce its rules regarding athletic eligibility because they give colleges something substantial to lose if they exit the NCAA, either by voluntarily withdrawal or involuntary expulsion.

From this analysis, I conclude that the NCAA's market power in the relevant markets for student athletes is derived from its control of access to Division IA football and Division I basketball. This control enables it to enforce rules to restrict competition for student athletes among colleges that play or seek to play at the highest intercollegiate levels of these sports.

ANTICOMPETITIVE EFFECTS

The NCAA restrictions on financial aid to student athletes cause harm in the relevant markets for educational services. The main direct harm is that scholarships are lower than they otherwise would be if there were no GIA cap or if aid were limited only by application of the principles of amateurism and student participation. As a result, existing student athletes are charged a higher net price for attending college than otherwise would be

the case.

The NCAA's financial aid policies create additional harms that cannot be quantified with sufficient precision to be part of the damage award, or that do not involve members of the two classes of plaintiffs. While these harms will not be compensated through this litigation, they are nevertheless real. These are discouragement of college attendance, distortions in the market for coaches, distortions in the choice of colleges by student athletes, and damage to the integrity of academic institutions.

Discouraging Attendance

Recall the discussion about the research literature on the price elasticity of demand for higher education. This research shows that college students are less likely to attend college and more likely to drop out if the net opportunity cost of college attendance is higher. Thus, a second anticompetitive harm arising from the NCAA's cap on athletic scholarships is that some student athletes are discouraged from attending or from continuing their studies if the do attend. This effect is not likely to be large, because the difference between COA and the GIA cap is not a large fraction of the total opportunity cost of college. For example, if the sticker price is $15,000 and foregone earnings are $15,000, and if the COA/GIA-cap difference is $3,000, the latter represents 10 percent of the annual total cost of higher education. If the price elasticity of demand for higher education is -0.5 percent, the GIA cap reduces college attendance by 5 percent, which is

very close to the fraction of athletes who are offered scholarships but do not end up enrolling. Of course, this is simply an illustration – other factors could explain decisions not to attend college. But economics research on the demand for higher education conclusively shows that changes in the net price of higher education significantly affect college attendance. Thus, binding NCAA rules that set a ceiling on scholarships at the GIA cap cause fewer student athletes to attend college than would be the case if the ceiling were higher.

The recruitment data are consistent with the conclusion that the cap discourages some athletes from attending college. Recall that about six percent of student athletes who are offered football or basketball scholarships in the relevant markets do not attend college at any level. We do not know how many of these students decide not to attend for financial reasons and how many do not attend for academic or behavioral reasons; however, as revealed in the McNeese State and Mississippi State disciplinary proceedings, we also know that some prospects are from low-income households, can not afford even minor costs of attending college, and want to work. While Pell Grants can help some of these students, this help may not be sufficient to make college attendance possible if the student is awarded only the GIA cap.

Distorting the Market for Coaches

A second anticompetitive harm arising from the suppression of financial aid to

athletes is that it leads to a distortion in the market for coaches. As argued elsewhere, suppression of aid to athletes makes successful coaches more valuable because it widens the gap between the revenues from success (as illustrated by the enormous payouts from post-season play) and the costs of achieving it. Competition for coaches transfers this gap to coaching salaries.

The distortion is that the prospects for multi-million dollar salaries in coaching distorts career choices. The value of coaches in the current environment exceeds the value of their own contribution in terms of teaching their sport, developing the skills of their student athletes, and creating team strategies. Regardless of conditions in the relevant markets for higher education, coaches would be rewarded for their performance in these dimensions in a competitive coaching market, and the resulting wages that they would earn are efficient signals to college students about a choice of a career. The inefficiency arises when the revenue that is due to the inherent skills of the athlete is captured by the coach. This part of the earnings of coaches sends the wrong signal because it causes coaching careers to have a greater financial value than their actual contribution to the value of the team.

Distorting Choice of College

The third anticompetitive harm arising from the cap on financial aid is that it distorts the choice of college by students who do attend. Recall the discussion about how the fact

that students can not be compensated for travel costs induces some students to attend school nearer home. NCAA officials defend this outcome on the grounds that students should be encouraged to attend college near home so that their families can watch them play. This argument might have some validity for functional families, but it can not possibly be true for everyone. College choice is a decision for students and their families to make, not football coaches and NCAA officials. The student-athlete and the student's parents are in the best position to know how to compare all of the relative merits of two colleges, including how close they are to home, the academic experience, and the quality of the football program, as did Jason White in selecting Stanford over Kentucky and home-town Rice. Colleges can best decide whether a prospect is sufficiently attractive that he ought to be offered transportation expenses. The student then can best decide whether the benefits of attending a distant college outweigh the disadvantages. The NCAA distorts student choices by deciding that students in Florida should face a substantial financial hardship if they want to go to California for college. Students who excel in academics and the arts do not face this problem, for their financial aid packages are based on COA including travel costs.

Encouraging Cheating and Undermining Academic Values

The last distortion arising from the NCAA's financial aid limits is that it converts behavior that in any other context would be admirable into cheating, and induces other

behavior by coaches and athletes that is directly at odds with the mission of the university. Consider the university employee who assisted a student athlete whose car had broken down on the freeway. Had the student not been an athlete, or had the person lending assistance been a stranger, letting the student borrow a phone to call for help, use a AAA card, and borrow the funds to cover the cost of repair would be regarded as an admirable, altruistic act. In the land of the NCAA, it is a crime to be punished. Consider the assistant coach who helped a poor student find a legitimate job on the loading dock at a department store. This job was hardly a cushy plum and his minimum wage could hardly be described as unearned. The act of calling a friend at a department store to help a poor youngster find employment would not be regarded as anything other than a positive gesture had the person who provided help not been a football coach or someone else affiliated with a university. But in NCAA land, repeated violations of this kind can cause a coach to be banned from college employment until approved by the NCAA.

In American higher education, wealthy individuals frequently provide financial aid to help poor students prepare for and attend college. Frequently these individuals favor sending students to a particular school. Normally such behavior is regarded as philanthropic and honorable. In the land of the NCAA, if such aid goes to an athlete, it is impermissible outside assistance that will make the student ineligible for athletic competition.

Finally, consider the academic fraud case at McNeese State, where someone was

paid to take tests in order to make an athlete eligible. Athletic officials have an enormous incentive to take such actions in order to improve the team, win moire games, obtain a big post-season payoff, and then sit back as the offers for a higher paying position role in. The suppression of financial aid enhances these incentives, and in so doing undermines the academic integrity of the college system by putting athletes on the field who are not really qualified students and who have been induced by university officials to participate in an activity that fundamentally undermines the values of an institution of higher education.

EFFICIENCY JUSTIFICATIONS

In antitrust economics, an efficiency justification for an anticompetitive act is an increase in efficiency that offsets the anticompetitive harms and that could not be obtained in a substantially less anticompetitive manner. The increased profitability to the firms that engage in an anticompetitive act are not part of an efficiency justification. The improvement in efficiency must benefit others sufficiently that it offsets the anticompetitive harm. Thus, the analysis of efficiency justifications begins with identifying and quantifying the efficiency benefits arising from the anticompetitive practice. If such an efficiency effect exists, efficiency justification analysis goes on to determine whether there is no substantially less anticompetitive means of achieving these efficiency advantages.

Officials of the NCAA have offered three categories of justifications for the limitation on financial aid: amateurism, competitive balance, and maximization of athletic

participation.

Amateurism

The NCAA asserts that the values pursued by colleges and the demand for intercollegiate sports both require that intercollegiate sports be played by amateurs who also are full-time students in good standing. I assume here that amateurism adds to the success of college sports. To the extent that the defense of amateurism constitutes a valid efficiency objective, amateurism is not threatened by the complaint and proposed relief in this litigation.

In the absence of the NCAA financial aid rules, competition for student athletes in the relevant markets would cause the value of athletic scholarships to increase and hence the price of higher education services to fall. Assuming that NCAA members desire to preserve the amateur status of their sports, the binding constraint on financial aid would be the maximum amount of financial aid that would enable athletes to continue to be regarded as amateurs by the governing bodies of amateur sports, such as the Amateur Athletic Union (AAU).

The AAU defines an amateur as someone who engages in sport as an avocation for pleasure and physical, mental or social benefits, but it does not rule out all forms of compensation for athletes. The AAU has two categories of members: youth (under age 21) and adult. Youth members can not compete for pay or financial prizes "beyond

reasonable expenses," although they can compete for non-monetary prizes as long as these are not sold for personal gain. Youth members also can receive gifts of clothing and equipment, and earnings derived from their fame as an athlete. In addition, the "reasonable expense" standard is looser than the NCAA's standard of "actual and necessary" expenses. For example, payments can be made in lieu of foregone earnings while preparing for an event. For adults, AAU rules prohibit competing for prize money in professional events, but there is no prohibition against being paid to participate in amateur events. I conclude that scholarships that would cover the full cost of college attendance easily would satisfy the AAU standards for amateurism.

The history of the NCAA supports this conclusion. Only since 1976 has the cap on athletic scholarships not included money for travel, course supplies, laundry and other incidental expenses. At no time before 1976 did anyone inside or outside the NCAA claim that eliminating incidental expenses from scholarships was necessary to satisfy the standards of amateurism. Instead, the 1976 change was adopted only to cut costs. In addition, the NCAA Student-Athlete Opportunities Fund and the NCAA Special Assistance Fund can be used to bring total financial aid to cost of attendance. Thus, I conclude that the NCAA does not believe that this efficiency justification applies to the proposal to raise the GIA cap to COA.

More recently, in the 1990s and into the new millennium the NCAA has considered a series of proposals to raise the cap on financial aid, and in fact has adopted several

measures to increase indirect support (recall the discussion of changes in NCAA rules regarding field trips, travel and medical care) and to permit aid that is unrelated to athletic participation that causes total aid to exceed the GIA cap. In 2002, the NCAA considered and rejected a proposal to set the ceiling for athletic scholarships at COA instead of the present cap. Again, the proposal was defeated because of its cost, not because it would turn college athletes into professionals.

Historically, the debate about amateurism has focused on two fairly extreme alternatives: whether colleges should award athletic scholarships at all, and whether athletes should be employees who are paid a salary. Neither of these proposals is relevant to this litigation.

The proposal to eliminate athletic scholarships would put athletes into the general pool of all students for consideration of financial aid that is based on need and academic merit. As discussed at length in the section on the economic history of intercollegiate sports, before the 1930s some conferences had this policy, and it is the policy today in the Ivy League, the Patriot League, the Pioneer Football League, and all of Division III. The NCAA tried and failed to make this a national rule when it adopted the sanity code. The position that athletic scholarships should not exist is not the definition of amateurism that is the basis for existing NCAA rules regarding financial aid, and so is irrelevant to this litigation. Moreover, the position that amateurism requires the elimination of athletic scholarships also is not supported by the definitions of amateurism that are used by the

AAU and other sports governing bodies.

The proposal that student athletes should be paid is based on the fact that other college activities also pay students who take on major, time-consuming responsibilities. In addition, some students have part-time jobs on campus, from waiting on tables or re-shelving library books to working as research assistants for faculty. Student-athletes generally do not have time for such employment, so that payments to athletes above their scholarship could be construed as compensation for this foregone opportunity. While this proposal comes much closer to the line of amateurism as defined for youth by the AAU, whether such a proposal violates the principles of amateurism probably depends on how much student-athletes are paid. The AAU Code is clear that some payments in excess of cost of attendance would not violate its amateurism rules.

In any event, salaries for members of football and basketball teams are not at issue in this litigation. Likewise, whether members of college teams need to be full-time students who are in academic good standing also is not an issue in this litigation. As long as athletes are full-time students, athletic participation is an avocation and not a profession, and as long as scholarships are limited to the actual costs of attending college, athletes are not employees. Consequently, athletes satisfy the standard for being amateurs.

Assuming that the goal of fielding teams of amateur students does enhance the value of college sports as well as campus life, the GIA cap is not the least restrictive reasonable alternative for achieving this objective. An alternative to the GIA cap is to

permit athletic scholarships to be set at the COA, which is consistent with the principles of amateurism as set forth by the AAU and other governing bodies in sports, including the NCAA. A COA cap would enhance competition among colleges for student athletes by eliminating travel costs as a factor affecting the decision where to attend college. The NCAA's rules restrict competition more than is necessary to achieve the goal of amateurism.

Competitive Balance

Competitive balance refers to the closeness of competition in a sport, and can be measured in many ways. One meaning is that the outcome of a game is uncertain. Another meaning is that the order of finish over a championship season is uncertain. Still another meaning is that a team's success or failure in one season does not persist over many seasons.

Competitive balance is potentially important because it can effect the enjoyment of a sport by its fans and participants. Of course, success increases interest and participation, while failure diminishes both; competitive balance becomes an issue concerning the efficiency of sporting contests only if the second effect is substantially more important than the first, so that imbalances among teams are so great that interest and participation are substantially lower than otherwise would be the case.

To conclude that competitive balance is an efficiency justification requires two

steps. The first is to show that the rule in question improves competitive balance, which means that all or nearly all important measures indicate better balance with the rule than without. The second is to demonstrate that imbalance would be sufficiently great without the rule that interest and participation would be diminished.

No topic in the economics of sports has been studied more than competitive balance. Indeed, the central question in the economics of sports since the field was created has been whether restrictions in a relevant market in which players are matched with teams significantly affect competitive balance and the financial stability of teams and leagues. The fundamental result is the "invariance rule" – restrictions on players do not affect competitive balance. Of course, this result is subject to caveats, and was developed in the context of markets for professional athletes, not college students. But the logic behind this conclusion is relevant to colleges, because it says that unless every conceivable avenue for competition among teams and for distributing athletes among teams by other than random assignment, players will end up on the teams that value them most highly.

In the case of college athletes, the theoretical argument is that persistent powers in college athletics will be the schools for which the value of athletics is greatest, and that these schools will make expenditures on unregulated activities, such as coaches, facilities, and special programs for athletes, that will cause them to attract the best players. Several research studies have examined whether this argument holds in the NCAA. The major findings are as follows.

First, past success on the field breeds current success in recruiting, and current success in recruiting breed future success on the field, thereby leading to persistence in terms of which teams succeed and which teams fail. The data for this study cover the period in which the GIA cap and scholarship limits were in force.

Second, the NCAA restrictions on recruiting and financial aid limit the ability of traditional powers to stockpile good athletes, but they also increase the difficulty of quickly improving a weak team, so that theoretical expectation about the net effect of these restrictions is ambiguous. Empirically, considering data over the past fifty years, the restrictions that the NCAA has imposed appear to have made competitive balance worse in terms of persistence.

Third, in a study of several measures of competitive balance, ranging from average score differentials to year-to-year persistence, the rule changes of 1973 were found to have no systematic effect. The author states this result as a test of the effect of scholarship limits, but as a statistical matter the results can not clearly distinguish among the rule changes of 1973-1976, including conversion to one-year awards and imposition of the GIA cap. Thus, the most accurate interpretation is that the bundle of changes enacted during this period did not improve competitive balance.

These results all pertain to football. To my knowledge, there is no comparable study for college basketball. But the same fundamental economic forces are at work in both sports. Caps on the number and size of scholarships benefit traditional athletic powers, and

the power conferences still dominate the ratings, national championships, and revenues from the post-season tournament. With the exception of the retirement of John Wooden, no event appears to have changed competitive balance in basketball for the past fifty years.

Because the NCAA rules do not increase competitive balance, there is no need to develop a less restrictive alternative to these rules that would achieve the same results as the current NCAA rules. Because the restrictions on aid have no effect on competitive balance, moving the cap to COA is certainly a less restrictive alternative that achieves the same amount of balance.

Maximization of Athletic Participation

The best articulation of this objective is from NCAA President Myles Brand. "In Division I, the revenue sports, most often only football and men's basketball, generate resources that are needed to conduct all the other sports in the program. The goal is to maximize the number of student-athletes at a competitive level across sports... We want to maximize the number of athletes competing at a competitive level, and we do this because athletics participation enhances the educational experience and enhancing the educational experience of students is the goal of higher education. That **IS** the Collegiate Model of Sports" (as punctuated in the original).

The essence of this argument is that capping financial aid is beneficial because it enables departments of athletics to offer more opportunities for athletic participation, which

in turn benefits students because it enhances their educational experience. Regardless of the merits of the hypothesis – that athletic participation enhances the educational experience – the goal of maximizing athletic participation is not an efficiency justification for restrictions on financial aid in the relevant market. The reasons are as follows.

First, restrictions on athletic scholarships do not necessarily go to expand participation in other sports. As explained above, they also lead to higher salaries for coaches and other personnel in the department of athletics because the markets for these employees are not restrained. Direct transfers from the NCAA or conferences to support other sports from the revenues generated by the NCAA basketball tournament would be a far more efficient way to achieve this objective, assuming it were valid, because it would not cause a bidding war for coaches in men's basketball.

Second, the BCS conferences generate far more funds from bowl games ands the NCAA basketball tournament than the cost of increasing their financial aid. There is no basis for believing that their budgets for other sports hinge on whether the men's basketball and football programs spend an additional $300,000 on athletic scholarships. This sum is trivial compared to their shares per school from post-season play, and trivial compared to the budgets of their departments of athletics. One source of inefficiency in using restrictions on aid to subsidize other sports is that a significant portion of the subsidy goes to colleges that do not need it. The BCS schools are a majority of Division IA, so it follows that most of the cost of the cross-subsidy goes to schools that have no need for the

program and that pay salaries in excess of a million dollars to head coaches precisely because at these schools a successful head coach can generate enormous revenues.

A far more efficient system of cross-subsidy would be to allocate NCAA revenues directly to schools with low direct revenues from athletics. For example, a lump-sum payment of $250,000 to all Division IA schools with revenues from football that are below average would cost about $15 million, which is less than the payout to a participant in a BCS game.

Third, the NCAA's cross-subsidy scheme is based on the idea that one group of students should subsidize another, rather than that the price of the college educational experience should reflect the cost of providing that experience and that adjustments to that price should be based on criteria such as need and merit. As evident from the enforcement cases, violations sometimes take the form of helping out poor athletes in football and men's basketball. In addition, research documents the obvious fact that African-Americans constitute a far higher proportion of football and men's basketball teams than their proportion of the college student body. The rationale behind the "tough as nails" enforcement policy against helping a poor black student find a job is that it abets a system whereby students who are poor and/or African-American should help subsidize a golf or tennis player who is white and wealthier.

The sticker price for the educational experience includes tuition and fees, which in turn is where the costs of a bundle of educational and extracurricular activities are reflected.

If a sticker price that includes great opportunities for athletic participation are not sustainable because students would choose to go to another college with fewer athletic opportunities but a lower sticker price, then it is inefficient, first, to provide these activities, and second, to pay for them by taxing another group of students. Efficiency requires that the beneficiaries of an activity face a price that reflects is cost, not that the beneficiaries are subsidized by others.

For these reasons, facilitating cross-subsidies for other sports is not an efficiency justification. Cross-subsidization reduces efficiency. Among the less restrictive alternatives for financing extensive athletics programs are, first, to divide revenues more equally so that schools with less income from athletics receive more revenue than they do now, and second, to spread the cost of money-losing programs more broadly by raising tuition and fees, rather than concentrating the tax on 85 football players and 13 basketball players.

1. Professor *Emeritus* of Economics, Stanford University, and Senior Fellow, Stanford Institute for Economic Policy Research.

2. *Jason White*, *et al., v NCAA*, Central District of California.

. Bylaw 15.02, *NCAA Division I Manual 2006-2007,* National Collegiate Athletic Administration, July 2006.

. My understanding is that the service academies are permitted to violate these restrictions because attendance at these institutions is part of a student's employment relationship with

the military. Students at the service academies were not members of the plaintiffs' alleged class.

. Andrew Zimbalist, *Unpaid Professionals: Commercialism and Conflict in Big-Time College Sports*, Princeton University Press, 1999, pp. 6-7.

. Ronald A. Smith, "The Historic Amateur-Professional Dilemma in American College Sport," *International Journal of the History of Sport,* Vol. 2, No. 3 (December 1985), p. 225.

. Ronald A. Smith, *Sports and Freedom: The Rise of Big Time College Athletics*, Oxford University Press, 1990, p. 119.

. PFRA Research, "The Journey to Camp: The Origins of American Football to 1889," Professional Football Research Association, at www.the-game.org/history-originsto1889.htm.

. PFRA Research, "Yale's Walter Camp and the Birth of Modern Football," Professional Football Research Association, at www.the-game.org/history-waltercamp.htm.

. Like Princeton and Rutgers in 1869, Harvard played Tufts and Yale in 1875 with each game played under different rules. Yale always insisted on 11-player teams, a battle it finally won in 1880 under the leadership of Walter Camp, who more than anyone is responsible for inventing the modern game. In basketball, courts differed in size and the

amount of space between the end of the court and walls or spectators until common dimensions were adopted in 1916.

. PFRA Research, "History of the Game: Harvard's Infamous Flying Wedge," Professional Football Research Association, at www.the-game.org/history-flyingwedge.htm.

. See bigten.cstv.com/sports/m-baskbl/spec-rel/big10-hoops-history.html.

. Quoted in Walter Byers and Charles Hammer, *Unsportsmanlike Conduct: Exploiting College Athletes,* University of Michigan, 1995, p. 40.

. See naia.cstv.com/genrel/090905aai.html.

. Steve Weiberg, "When NCAA Games Are on the Line, So Are Big Bucks," *USA Today*, March 21, 2006, at www.usatoday.com/sports/college/mensbasketball/2006-03-21-big-bucks_x. htm.

. By BCS rule, an independent school like Notre Dame or a second team from a conference received $4.5 million instead of $17 million. The six conferences that are not BCS members share the payout if a team from any of these conferences plays a BCS game. Some conferences, like the ACC, Big 10 and Pac 10, share net proceeds equally, while others, like the Big East, Big 12 and Western Athletic Conference, distribute the funds unevenly.

. Thomas O'Toole, "$17M BCS Payouts Sound Great, But..." *USA Today*, December 6, 2006, at www.usatoday.com/sports/college/football/2006-12-06-bowl-payouts_x.htm.

. Smith, 1990, *op. cit.*, p. 119-21.

. Smith, 1985, *op. cit., p. 223.*

. *Ibid.,* p. 224.

. Zimlablist, *op.cit.,* p. 7.

. Smith, 1990, *op. cit.*, pp. 136-7.

. Arthur A. Fleischer III, Brian L. Goff, and Robert D. Tollison, *The NCAA: A Study in Cartel Behavior*, University of Chicago, 1992, p. 38

. S. W. Pope, "Amateurism and American Sports Culture: The Invention of an Athletic Tradition in the United States, 1870-1900," *International Journal of the History of Sport,* Vol. 13, No. 3 (December 1996), p. 299.

. Smith, 1990, *op. cit.*, p. 6.

. Ronald A. Smith, "Harvard and Columbia and a Reconsideration of the 1905-06 Football Crisis," *Journal of Sports History* Vol. 8, No. 3 (Winter 1981), p. 6.

. *Ibid.*, p. 15, and George H. Hanford, "Controversies in College Sports," *The Annals of the American Academy of Political and Social Science*, No. 445 (September 1979), p. 69.

. Howard E. Savage, *et al., American College Athletics*, Bulletin No. 23, Carnegie Foundation for the Advancement of Teaching, 1929.

. "Evolution of College Athletic Financial Aid Regulations: Conference Rules 1930-1950," NCAA, 1980.

. From the Big 10 history at bigten.cstv.com/trads/big10-trads.html.

. James P. Quirk, *Minnesota Football: The Golden Years 1932-1941, Graphco*, 1984, p. 10.

. Today in Division IAA the Ivy League, the Patriot League in football, and the Pioneer Football League do not permit athletic scholarships. In Division IA, the service academies technically do not award athletic scholarships because all students are fully supported.

. Quoted in Byers and Hammer, *op. cit.*, p. 238.

. U. S. Department of Justice and the Federal Trade Commission, *Horizontal Merger Guidelines* (henceforth *Merger Guidelines*), available at www.ftc.gov/bc/docs/horizmer.htm, revised April 8, 1997.

. *Merger Guidelines*, Section 1.0.

. *Ibid.*, Section 1.11.

. The seminal research in estimating cross-elasticities of demand for purposes on antitrust analysis is Jonathan B. Baker and Timothy F. Bresnahan, "The Gains from Merger or Collusion in Product Differentiated Industries," *Journal of Industrial Economics* Vol. 33,

No. 4 (December 1985), pp. 427-44, which applies this method to the beer industry. The proposed merger between Staples and Office Depot is examined in Orley Ashenfelter, David Ashmore, Jonathan B. Baker, Suzanne Gleason and Daniel S. Hosken, "Empirical Methods in Merger Analysis: Econometric Analysis of Pricing in *FTC v. Staples*," *International Journal of the Economics of Business* Vol. 13, No. 2 (July 2006), pp. 265-79.

. Unbiased estimation of cross-elasticities of demand in product-differentiated markets requires simultaneously estimating the demand for all products that might be in the relevant market, which requires that each equation be "identified" – that is, the number of independent variables available for estimating the equations must be as great as the number of separate products. For markets with many products, this condition is sometimes impossible to satisfy.

. George J. Stigler and Robert A. Sherwin, "The Extent of the Market," *Journal of Law and Economics* XXVIII (October 1985), pp. 555-85.

. A classic article in economics dealing with product differentiation examines physical location, such as the location of hot dog stands on a beach, as a source of product differentiation. If hot dog stands can enter freely and can relocate at virtually no cost, and bathers are distributed uniformly on the beach, then hot dog stands will separate from each other so that almost all customers find themselves having to experience travel cost (the time

spent walking) to buy a hot dog. Those customers near the middle of the space between stands will be willing to switch sellers if either moves a little closer, and this behavioral response from a relatively small fraction of customers will cause enough hot dog vendors to enter such that no vendor earns excess profits. Note that two stands that are far apart can have competitive effects on each other, for if one moves, all of the other stands between them also will move in response, thereby affecting the sales and the optimal location of all other vendors. See Harold Hotelling, "Stability and Competition," *Economic Journal*, V. 39, No. 1 (1929).

. For a more complete explanation of antitrust analysis in these industries, see Carl Shapiro, "Mergers with Differentiated Products," www.usdoj.gov/atr/public/speeches/ shapiro.spc.txt. ADVANCE \d 6

. *Ibid.*

. Federal Trade Commission, Docket No. 9298, "In the Matter of Polygram Holding, Inc., Decca Music Group Limited, BMG Recordings, Inc., and Universal Music & Video Distribution Corp.," July 24, 2003, www.ftc.gov/os/2003/07/polygramopinion.pdf.

. See the declarations and depositions of the named plaintiffs.

. "We are the only country in the world that integrates sports with education, at the secondary and collegiate levels." Myles Brand, "The Principles of Intercollegiate Athletics," State of the Association Address, January 7, 2006.

. Many state colleges and universities do not provide financial aid to out-of-state students while also charging them higher tuition. These policies have the effect of increasing the degree of geographic segmentation of the market and reducing competition between public universities in different states.

Here and elsewhere, my statements about the rosters of college teams are based on the rosters that were listed on the college's web site in early August, 2007.

. Here and elsewhere, references to team rosters are based on the roster lists on the school's web sites as of August 1, 2007.

. A comparison between Alabama and Troy State is not feasible because the recruiting data for Alabama show an implausibly small number (four) of scholarship offers to students who also are sought by other schools.

. "There are 360,000 student-athletes, and almost all of them will go pro in something other than sports." Brand, "Principles..," *op. cit*.

. See www.insidehoops.com/nba-draft-early-entry.shtml.

. See, for example, Roger G. Noll, "'Buyer Power' and Economic Policy," *Antitrust Law Journal* 72(2) (2005), pp. 311-40, and the references therein.

See Roger G. Noll, "Broadcasting and Team Sports," *Scottish Journal of Political Economy* 54(3) (July 2007), pp. 400-21, and the references therein about the effect of

broadcasting on live attendance at sporting contests.

. Economists also sometimes use changes in the Lerner Index, the ratio of mark-up to price, but this requires information about costs that is not available for higher education services.

. The requirements are set forth in Article 20.9 of the *NCAA Manual.*

. On the objectives and management of universities, see Michael S. McPherson, Morton Owen Schapiro, and Gordon C. Winston, *Paying the Piper: Productivity, Incentives and Financing in U. S. Higher Education*, University of Michigan, 1993; and Linda R. Cohen and Roger G. Noll, "Universities, Constituencies, and the Role of the States," in Roger G. Noll, ed., *Challenges to Research Universities*, Brookings Institution, 1997.

. "Universities attempt to maximize their revenues and redistribute these resources according to their educational mission. Universities are not-for-profit corporations, and as such, they do not generate profits for private owners or shareholders." Brand, "Principles..," *op. cit.*

. See ope.ed.gov/athletics/ and www1.ncaa.org/membership/ed_outreach/eada/index.

. See Roger G. Noll and William P. Rogerson, "The Economics of University Indirect Cost Reimbursement in Federal Research Contracts," in Noll, *Challenges..,* op. cit.

. These numbers are estimates based on a sample. Economists at ApplEcon took a random

sample of infractions reports, classified them as including men's basketball, football, both or neither, counted the total pages of these reports, then estimated the total number of reports in these sports by multiplying the number of reports that were sampled by the ratio of total pages to the page length of the reports that were classified as basketball and/or football.

. Brand, "Principles..," *op. cit.*

. "McNeese State University: Public Infraction Report," February 7, 2007. One feature of major violations is that usually the identities of the institutions are made public as part of the punishment; however, the names of the coaches often are not revealed.

"Mississippi State Public Infractions Report," October 27, 2004.

. Brand, "The Principles..," *op. cit.*

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