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# Markets
# Cartel Behavior and Amateurism in College Sports

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This feature explores the operation of individual markets. Patterns of behavior in markets for specific goods and services offer lessons about the determinants and effects of supply and demand, market structure, strategic behavior, and government regulation. Suggestions for future columns and comments on past ones should be sent to James R. Hines Jr., c/o *Journal of Economic Perspectives*, Department of Economics, University of Michigan, 611 Tappan Street, Ann Arbor, MI 48109-1220.

## Introduction

College football and college men's basketball generate professional-level revenues. Total ticket revenues for football and men's basketball were $757 million in 1999, which exceeded ticket sales for professional baseball, football, and hockey that year (Sandy and Sloane, 2004, p. 88). The broadcast revenue from the NCAA men's basketball tournament alone was $564 million in 2005, which exceeded the broadcast revenues for Major League Baseball. Add in the broadcast revenues for regular-season college games, along with college football and its end-of-season bowl games, and the combined college basketball/football revenue exceeded the broadcast revenues for professional basketball—although it would fall well short of the $2.2 billion in broadcast revenues earned by professional football in 2005 (Fort, 2006; Panaccio, 2005).

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Both big-time college athletics and professional athletics have highly paid coaches and expensive facilities for games and practices. However, while professional teams are owned by investor groups and feature highly paid athletes, college teams are "owned" by colleges and universities whose official mission is not primarily athletic accomplishment and they feature athletes who receive only free tuition, board, and a small stipend for living expenses—if the athletes even receive a full scholarship, which not all of them do.

The National Collegiate Athletic Association (NCAA) has the task of navigating between the large revenues available for intercollegiate men's football and basketball and the broader mission of colleges and universities. Most economists who have studied the NCAA view it as a cartel that attempts to produce rents, both by limiting payments for inputs such as player compensation and by limiting output (for example, Alchian and Allen, 1972; Becker, 1987; Barro, 2002). A competing view holds that the NCAA rules place a value on amateurism and competitive balance (McKenzie and Sullivan, 1987), and seek to avoid an "arms race" scenario in which schools waste resources in an attempt to gain a relative advantage (Frank, 2004); after all, no matter how much money schools spend on their basketball programs, only four schools will make it to the Final Four of the national tournament. The potential effects on fan demand of amateurism and competitive balance distinguish analyses of sports from those of other industries, where presumably consumers are not concerned about the contractual status of the industry's workers or the relative status of the firms in the industry. In addition to these financial concerns, the NCAA clearly also has an interest in academic integrity; however, it isn't clear whether such a concern is part of the NCAA's overall objective function or whether it is a means to an end, given the fact that the games take place within colleges and universities, which do value academic integrity *per se*.

In this paper, I discuss evidence on whether the NCAA has exercised cartel power. I also review evidence on the indirect effects of college sports on the rest of the university, including how sports revenues affect the rest of the university; the quality and quantity of student applications; alumni contributions; and state appropriations for higher education.

## The NCAA as a Cartel

The NCAA arose in the first decade of the twentieth century in response to concerns over the physical safety and amateur status of football players (Fleisher, Goff, and Tollison, 1992). In 1950, the NCAA had 387 member institutions (p. 67); by 2006, there were 1024 active member schools (NCAA web site ⟨http://www.ncaa.org⟩, accessed February 15, 2006). In 1973, the NCAA created three divisions, and in recent years, the organization has further segmented Division I into I-A,

I-AA, and I-AAA.[1] The focus of my discussion here is on the two main revenue-generating sports at the Division I-A schools: football and men's basketball.

According to proponents of the cartel theory of the NCAA, the organization has enforced collusive restrictions on payments for factors of production, including player compensation, recruiting expenses, and assistant coaches' salaries; it has restricted output; and it has defeated potential rival groups (Fleisher, Goff, and Tollison, 1992; Zimbalist, 1999). The NCAA can levy sanctions against athletic programs found in violation of its rules, sanctions which range from a temporary reduction in scholarships, to suspension of a program from postseason play, all the way up to the requirement that a school eliminate a certain team and, even, measures that indirectly threaten the school's academic accreditation (Fleisher, Goff, and Tollison, 1992, pp. 10–11; Alchian and Allen, 1972, p. 444). Today, restrictions on payments to players are probably the most important way in which the NCAA acts to restrict competition. But historically, the NCAA has sought other ways to reduce input payments and to restrict output.

**The Rents from Restricting Pay to College Players**

The historical roots of the limits on paying players go back to when college football became much more popular and grew into a national sport between 1920 and 1950. As revenues rose, numerous instances of payments to athletes were observed in the 1940s (Zimbalist, 1999, p. 9). In 1948, the NCAA adopted the "Sanity Code," which limited financial aid for athletes to tuition and fees, and required that aid not be given solely on the basis of athletic ability; rather, schools had to consider financial need. However, several schools refused to go along with the Sanity Code, and a number of southern conferences in 1949 considered bolting from the NCAA (Sack and Staurowsky, 1998, p. 45). In the early 1950s, the NCAA amended its rules and allowed athletes to receive scholarships based on their athletic ability, and schools were allowed to give awards that covered tuition and fees, as well as a living stipend.

Evidence that the best college athletes are paid below a competitive level of compensation is based in part on estimates of the marginal revenue product of these players (Brown and Jewell, 2004, 2006; Brown, 1993, 1994). The basic methodology in these studies is to estimate regressions where the dependent

[1] Fulks (2005a, p. 133) explains the NCAA division system. In each division, each sport must have a minimum roster size and schedule a minimum number of games. Division I schools must have at least seven men's and seven women's sports, or six men's and eight women's. All Division I schools must schedule at least a minimum number of games against other Division I schools and must abide by financial award minima and maxima with respect to the number of awards. Division I schools with football are classified as I-A or I-AA. For membership in Division I-A, a school must have a football team which satisfies attendance criteria. Division I schools without football programs are classified I-AAA. For comparison, Division II schools must have at least four men's and four women's sports, and, for each gender, at least two of these must be team sports. There are opponent scheduling criteria for football and men's and women's basketball. There are maximum numbers of financial awards for each sport. Division III schools must have at least five men's and five women's sports, again with at least two team sports for each gender. These schools are not allowed to award athletic scholarships.

variable is total revenue for a school from a given sport, including media and ticket sales. The key explanatory variable is the number of players on the college team who were eventually drafted by the major professional league. A variety of control variables are added for factors like market size, type of conference, and other inputs as proxied by past team success. The coefficient on the number of eventually drafted players is an estimate of the marginal revenue product of a star player.

Analyses using this framework have been performed for college football, as well as men's and women's college basketball. In constant 2005 dollars, estimates of the marginal revenue product of a draft-quality player range from about $263,000 for women's basketball (based on the 2000–2001 season) (Brown and Jewell 2006, p. 98) to $495,000 for college football (based on the 1995 season) and $1.422 million for men's college basketball (based on the 1995–96 season) (Brown and Jewell, 2004, p. 159).[2] These estimates of the marginal revenue product of a draft-quality athlete can be compared to the compensation of college athletes. According to NCAA rules, athletes are limited to receiving a scholarship and stipend, supplemented by up to $2,000 of earnings from a job during the school year (Zimbalist, 1999, p. 26). Since the cost of tuition, fees, room, board, and incidentals comes to roughly $40,000 at private schools (and less in most cases for public schools), compensation is far below marginal revenue product for these revenue-producing athletes. Computations such as these offer evidence that the NCAA does indeed use its cartel power to pay top athletes less than their market value (Fleisher, Goff, and Tollison, 1992; Zimbalist, 1999).

Another piece of evidence that the NCAA is restricting pay comes from the widespread incidence of under-the-table payments for top college athletes. For example, Sack (1991) surveyed 3500 current and retired NFL players in 1989, of whom 1182 responded. He found that 31 percent of them received under-the-table payments while in college and 48 percent claimed they knew of others who received them. I interpret these under-the-table payments as meaning that schools (or their boosters) are willing to pay to enhance product quality by bringing in and keeping top recruits. The boosters' payments should be considered part of the demand for athletic entertainment and therefore are rightly included in the players' marginal revenue products.

While the evidence that the NCAA restricts what top college athletes would otherwise be paid is strong, several complicating factors deserve consideration.

[2] Some of these estimates attempt to take account of the endogeneity of recruiting high-quality players. Suppose, for example, that unmeasured fan demand levels are positively correlated with demand sensitivity to high-quality players. Surplus-maximizing programs will have a higher demand for stars the greater this demand sensitivity is, and under these assumptions, there will be a positive correlation between the presence of draftable players and the error term in a revenue equation. I note, however, that the identification problem here is challenging. To produce constant dollar estimates, I use the National Income and Product Accounts Personal Consumption Expenditures (PCE) deflator (from ⟨http://www.bea.gov⟩, accessed February, 14, 2006). I inflate from the year during which a regular season ends; for example, 1995 for the 1995 football season and 2001 for the 2000–2001 basketball season.

First, many college athletes are admitted to schools to which they might not otherwise have access, and where they receive high-level coaching, training, and media exposure, thus enhancing their future earning power. Of course, going to college may have smaller benefits for those who don't graduate, and low graduation rates in big-time athletic programs have received considerable publicity. However, overall, graduation rates for athletes and nonathletes are quite similar (DeBrock, Hendricks, and Koenker, 1996; NCAA web site ⟨http://www.ncaa.org⟩, accessed 10/10/06).[3] If the cost of providing these indirect benefits is high enough, then total compensation to players might indeed equal their marginal revenue product. But at least for the top stars, the marginal revenue product figures and the evidence of under-the-table payments cited earlier suggest that even after taking into account schools' costs of training and the like, total labor payments would still be less than marginal revenue products.

Second, competition for top college athletes may be wasteful from society's point of view. After all, one team will win and one team will lose regardless of recruiting efforts, and rather than participating in an arms race for top athletes, schools could have devoted resources to other university activities (Frank, 2004). The same reasoning applies to the construction of lavish stadiums and workout facilities. The ultimate issue here concerns the demand by fans of college sports for relative vs. absolute playing quality. As long as some demand exists for relative quality, then unbridled competition can lead to inefficiently high demand for inputs to playing quality. The continued popularity of the NCAA men's basketball tournament in spite of the loss of top players to the professional NBA (which recruits them starting around age 19) suggests the appeal of competition, or relative quality. But college sports fans also appreciate a high-quality product, or absolute quality: visiting teams draw more fans the better they are (Noll, 2003; Hausman and Leonard, 1997).

A third consideration on the issue of the efficiency of NCAA rules is that if the labor supply curves of college players are perfectly inelastic, then no efficiency loss occurs in restricting their pay. If playing college sports were most players' best use of time by a large margin, then this condition would seem approximately to hold. However, potential college basketball players may seek other employments—namely as professional basketball players—in effect making their labor supply curves more elastic than otherwise. As of the 2001–2002 season, of the 366 American players in the National Basketball Association (NBA), 115 of them

[3] For example, for the freshman class of 1998–99 at Division I schools, the six-year graduation rate was 60 percent for all students and 62 percent for student-athletes. Admittedly, graduation rates were lower in the two main revenue-producing sports: 43 percent in men's basketball and 54 percent in football. However, this discrepancy is at least partially accounted for by the racial composition of the teams relative to the overall student body. Specifically, overall, white male students had a 60 percent graduation rate, while that of black male students was 36 percent. In men's basketball, white players had a 53 percent graduation rate, while the figure for black players was 38 percent; in football, the graduation rates were 62 percent for whites and 49 percent for blacks. See ⟨http://www.ncaa.org⟩, accessed 10/10/06.

(31 percent) had entered the NBA before their college class would have graduated, and 14 of these never went to college at all (based on data collected for analysis in Kahn and Shah, 2005). Thus, many top college or high school players may be at the margin between playing in college and trying to enter the NBA. If fans of the college game care about absolute quality, then lowered compensation may lead to an insufficiently low level of playing quality. In this situation, the NCAA may find it desirable to allow higher levels of compensation for athletes. Indeed, the NCAA now allows athletes to earn money in a job on campus, although the $2,000 limit on such earnings may be too small to affect the labor supply of top athletes noticeably. Therefore, a school that pays a top athlete money to play may also be raising absolute quality of college play by deterring the player from turning pro and keeping him longer in college (DeBrock, Hendricks, and Koenker, 1996). Moreover, a school that induces a player to remain in college rather than turn pro may indirectly raise the income of other schools, too, since higher-quality opposition raises a team's home attendance (Hausman and Leonard, 1997; Noll, 2003).

Fourth, McKenzie and Sullivan (1987) argued that NCAA limits on player compensation enhance the economic value produced by the college sports enterprise, since part of the appeal of college sports is the spirit of amateurism, in contrast to the professionalism of major league sports. It is theoretically possible that demand for amateur college sports is much higher than demand for college sports would be if players were treated as professionals; but no evidence exists on this point.

Fifth, from a redistributionist point of view, for at least some college athletes who make it to the National Football League (NFL) or NBA and likely generate a disproportionate share of the revenues in college sports, lifetime permanent income may be high. Thus, the redistribution caused by monopsony over these athletes may in fact be progressive. On the other hand, college athletes rarely make it to the professional ranks: only 1.3 percent of NCAA football players and 1.7 percent of NCAA basketball players make it to the pros (Zimbalist, 1999, p. 31). The exercise of monopsony power limiting the pay of these athletes while they are in college may thus lead to a regressive transfer of wealth. The net effect of cartel behavior on distribution depends on the relative revenues generated by the few who make it to the pros versus the many who don't. There is an additional redistribution to consider. To the extent that training facilities substitute for direct pay as recruiting methods, the athletes who don't generate revenue gain from pay restrictions on the stars, since all athletes benefit from training facilities. (Monopsony power over players and coaches can affect coaches' incomes as well, as discussed in more detail below.)

Finally, the effects of the monopsony power over revenue-producing college athletes is not racially neutral. The participants in Division I men's basketball and football are disproportionately African-American. In the 1990s, while black students comprised only about 7 percent of undergraduates at Division I schools, 46 percent of football players and 60 percent of basketball players at these schools were black (Sack and Staurowsky, 1998, p. 105). One can view this imbalance in

either of two ways. On the one hand, minority athletes are receiving a scholarship and an opportunity to go to college that might not have been there in the absence of college sports. On the other hand, these athletes are bearing the costs of allowing the NCAA to collude over athlete pay, at least assuming that college sports would retain their popularity even if the players were paid market salaries.

**Restrictions on Pay of Assistant Coaches**

In 1991, the NCAA set a maximum compensation level for certain assistant coaches. These designated Restricted Earnings Coaches had their earnings capped at $12,000 during the academic year and $4,000 for any summer camp earnings. Several antitrust suits were filed against the NCAA on behalf of the assistant coaches, and they were consolidated into one class action. In 1995, a federal court decided for the plaintiffs, and damages to the coaches were ruled in 1998 to be $22.3 million, which under the treble damages provision of antitrust law were multiplied to $67 million. The NCAA appealed, but the parties eventually settled for $55.5 million, to be divided among roughly 1000 assistant coaches (Hamilton, 2003).

**Other Rules: Age Limits, Roster Sizes**

In 2005, the NBA and its union limited American players' ability to enter the professional basketball league early by setting a minimum age of 19 and a minimum of one year past the graduation of one's high school class before one is allowed to enter.[4] In 2004, under the antitrust laws, a college sophomore unsuccessfully challenged the NFL's rule preventing players from entering before three years after high school graduation.[5] Both the NBA's new rule and the NFL's rule on underclassmen make the supply of athletes to colleges less elastic and thus increase the potential for extracting rents from these athletes.

The NCAA limits the total number of football scholarships at Division I-A schools to 85, a reduction from its pre-1992 limit of 95 (Sutter and Winkler, 2003; see also ⟨http://www.ncaa.org⟩, accessed 6/16/06). One argument for this limitation is that it would improve competitive balance by making it harder for a few schools to stockpile talent. However, in college sports, limits on roster size (or on player compensation) need not create a greater competitive balance, as long as schools can recruit enough players through other means, such as having a highly

[4] See the 2005 collective bargaining agreement between the NBA and the NBA Players Association, available at ⟨http://www.nbpa.com/cba_articles.php⟩, accessed March 24, 2006.

[5] The player, Maurice Clarett, initially prevailed at the U.S. District Court level, but this decision was overturned by the Second Circuit Court of Appeals, and the U.S. Supreme Court refused to intervene. These decisions are available at: ⟨http://www.supremecourtus.gov/docket/03a870.htm⟩, ⟨http://files.findlaw.com/news.findlaw.com/wp/docs/nfl/clarettnfl20504opn.pdf⟩, and ⟨http://files.findlaw.com/news.findlaw.com/usatoday/docs/nfl/clarettnfl52404opn.pdf⟩, accessed March 24, 2006.

qualified (and paid) coaching staff or lavish facilities and academic support.[6] This outcome may be likely, since schools typically have far fewer than 85 future NFL draftees on their roster at any time. Indeed, research into how competitive balance was affected by the reduction in the number of football scholarships from 95 to 85, while showing mixed results, tends to find insignificant effects of these limits on competitive balance (Sutter and Winkler, 2003).

In contrast to roster size limits, NCAA limits on player mobility could well affect competitive balance. Specifically, after transferring to another school, a player must sit out a year (Fort, 2006, p. 495). Thus, if a low-revenue school recruits a player who turns out to be better than expected, the mobility barrier caused by this rule might prevent movement to a school where that player's marginal revenue product would be higher. There is likely to be an optimal level of competitive balance (which maximizes total revenue for college sports as a whole), and limits on mobility may be one tool to achieve this.[7]

**Head Coaches and Rents**

The effect of cartel activity on the incomes of head coaches is complicated. On the one hand, we have seen that the NCAA explicitly tried to exercise its monopsony power over assistant coaches. While the courts decided that this attempt violated antitrust laws, there may still be implicit collusion with respect to head coaches that is hard to detect. Also, to the extent that the NCAA has restricted output, the demand for coaching inputs would be lowered. If, as is likely, coaches have less than perfectly elastic labor supply curves to the college sports industry, then their incomes would fall as a result. On the other hand, NCAA rules on player compensation probably raise the marginal revenue product of effective coaches and the value of top-quality facilities, since these become the primary means of attracting athletes. Even without "arms race" considerations, the limitation on player pay may lead to inefficiently high levels of expenditures on lavish facilities and coaches' services. In contrast, a professional sports team can always bid for players. While no research yet assesses the portion of college coaches' income that is due to their ability as recruiters, this analysis suggests that their incomes could fall if the market for players were made competitive.

Whatever the net effect of NCAA rules is on the incomes of coaches, minority representation in these groups is much lower than it is among revenue-producing

[6] In professional sports, the logic of the Coase theorem implies that restraints on player pay do not affect competitive balance as long as teams can trade player contracts efficiently. Of course, at the college level there are no contracts to be traded. Most research on professional sports finds little effect of player free agency on competitive balance, supporting this reasoning (Kahn, 2000).

[7] The U.S. Supreme Court 1984 decision on television rights, discussed further below, held that NCAA restraints on player mobility across schools and player compensation were essential for the production of competitive games (McKenzie and Sullivan, 1987, pp. 390–392). However, NCAA limits on compensation were as of 2006 under attack as two class action antitrust lawsuits were filed in 2004 and 2006 challenging the NCAA's limits on the number of scholarships per football team and the limit on the stipend per athlete in the big-time football and men's basketball programs. See Farrey (2006) and Johnson (2006).

athletes. For example, a recent study of college football coaches over the 1990–2000 period found that only 3.8 percent were black (Mixon and Treviño, 2004, p. 650). We have already seen that a disproportionate share of the revenue-producing athletes are nonwhite, suggesting a wealth transfer along racial lines, if indeed monopsony over the players raises coaches' salaries.

**Limits on Output**

Before 1984, the NCAA controlled its members' access to televised games. Given the profusion of college sports games now available through broadcast media, it is less likely that the NCAA restricts output in this way today. In 1977, a group of colleges and universities with major football programs formed the College Football Association (CFA) to influence the NCAA's stand on televised games (Siegfried and Burba, 2004, pp. 802–805). In 1981, the CFA was ready to negotiate a separate television contract with NBC; however, the NCAA threatened to expel any school that signed the contract, which would have eliminated the affected schools' rights to NCAA basketball tournament revenue. In response, two of the CFA member schools, the University of Oklahoma and the University of Georgia, sued the NCAA for antitrust violations and won a Supreme Court decision in *N.C.A.A. V. Board of Regents of University of Oklahoma* (468 U.S. 85 [1984]), which ended NCAA control of broadcasting rights.

Since then, an explosion of separate television contracts has occurred. Table 1 shows a sharp increase in quantity and an even sharper fall in price of televised college football games between 1983 and 1985, suggesting that before the Supreme Court decision, the NCAA indeed was using its monopoly power to restrict output and raise price. It also appears that in 1983, the NCAA was operating in the inelastic portion of its demand curve, since over the next two years, price fell by about three-quarters, while quantity only rose by 50 percent. If this interpretation of the price and quantity changes is correct, then the NCAA wasn't fully exploiting its monopoly power before 1984. Such a policy could have been due to a desire to enhance future demand by underpricing current broadcasts (relative to a static monopoly profit maximum), or else because the NCAA feared litigation or attempts by some schools to negotiate separately with television networks.[8]

Other historical examples of output restriction include the NCAA's decision to reduce the number of football bowl games from 50 during the 1940s to only nine by 1952; and, in 1955, the introduction of a restriction on the numbers of practices and games for both football and basketball (Fleisher, Goff, and Tollison, 1992, p. 55).

[8] Some of the fall in price is undoubtedly due to the addition of cable television games which may have a regional, as opposed to national, market. This possibility suggests that the advent of cable television could itself explain the fall in price and increase in quantity of televised games. However, the fall in price was very sudden and dramatic, and it occurred immediately after the Supreme Court decision, lending plausibility to the monopoly power argument.

*Table 1*
**College Football Television Revenue Before and After the 1984 Supreme Court Decision Ending NCAA Control of Television Broadcasts**
*(2004 dollars)*

| Year | *Number of games televised* | *Total revenue (millions)* | *Revenue per game (millions)* |
|---|---|---|---|
| 1980 | 24 | $70.46 | $2.94 |
| 1981 | 24 | $68.00 | $2.83 |
| 1982 | 28 | $114.52 | $4.09 |
| 1983 | 28 | $120.35 | $4.30 |
| 1984 | 36 | $39.66 | $1.10 |
| 1985 | 42 | $47.00 | $1.12 |
| 1986 | 42 | $49.56 | $1.18 |
| 1987 | 42 | $46.17 | $1.10 |
| 1988 | 43 | $44.33 | $1.03 |

*Source:* Fort (2006, p. 485).

**Fighting Off Challenges of Rivals**

An additional indicator of the existence of cartel rents occurs when cartel members act to protect these rents. The NCAA has faced rival organizations but has largely been able to keep its monopoly position over college sports (Zimbalist, 1999, pp. 57–8, 112; Katz, 2005). One example of this behavior involves the Association of Intercollegiate Athletics for Women (AIAW), which was founded in 1971 to advance and make rules for women's collegiate athletics in much the same way that the NCAA did for men's sports. In the early 1980s, the NCAA began scheduling women's championships and offered inducements such as including the women's basketball championship tournament in its television package; it also scheduled the finals to take place at the same time as the AIAW's finals. By 1982, the AIAW was gone.

A second example of the NCAA protecting its position involves the National Invitation Tournament (NIT), a rival men's college basketball tournament that once was more prestigious than the NCAA tournament. In 1960, the NCAA implemented a rule requiring members to give the NCAA tournament priority, eventually relegating the NIT to second-class status. The Metropolitan Intercollegiate Basketball Association (MIBA)—made up of Fordham, Manhattan, St. Johns, Wagner, and New York University—filed an antitrust suit over the NCAA's rule, which was settled in 2005 after four years of litigation. In the settlement, the NCAA bought the rights to the NIT for $40.5 million and compensated the MIBA an additional $16 million in return for dropping the suit (Katz, 2005).

Third, the creation of the Division I-A system and the Bowl Championship Series for college football have been interpreted as a way for the big-time athletic powers to protect the rents they receive (Leeds and von Allmen, 2005). To be a member of the Division I group, a school must offer minimum numbers of men's and women's sports, as well as numbers of scholarships; and in order to be a

Division I-A football school, one must additionally satisfy minimum football fan attendance standards. In addition to these explicit membership hurdles, some have interpreted the tightening of academic standards in the NCAA (with respect to SAT scores and high school grades and courses) as an attempt by some schools to protect their cartel position (Fleisher, Goff, and Tollison, 1992). It is also possible that the higher standards were implemented for public relations purposes or because the NCAA members were genuinely concerned about academic integrity, even if such concerns cost them a chance to sign some top recruits.

Potentially counteracting these trends toward erecting entry barriers into the elite groups of big-time programs is the recent proliferation of conference tournaments. Many conferences such as the Big 10 have added postseason conference basketball tournaments that take place before the NCAA championships. These conference tournaments can be seen as a partial consequence of the 1984 Supreme Court decision in which the NCAA was no longer allowed to control access to televised games. They may represent a kind of entry that adds to the supply of games and thus dilutes some of the monopoly power the NCAA tournament enjoys. The recent realignments and enlargement of several conferences may increase the viability of these tournaments and thus may indirectly contribute to the higher supply of games.

## The Financial Effects of College Sports on the Rest of the University

What happens to the funds that big-time college sports programs don't pay to their athletes? Are these funds fully dissipated in coaches' salaries and facilities? Are some of them shared with the rest of the university? Does intercollegiate athletics indirectly generate benefits for universities through alumni contributions, state appropriations, or attraction of better students? A reasonable first step in analyzing the impact of college sports on the rest of the university is to ask whether, on average, the revenue-producing sports earn an accounting profit and, if so, whether they provide direct transfers to the university generally. Of course, analyzing the effect of sports on a university in a partial equilibrium context does not answer the larger question of whether college sports pay off for society. The arms race considerations mentioned earlier would assume paramount importance here; it is quite possible that each school individually acting rationally would produce an excess level of investment in sports from an overall efficiency point of view. However in this section, I tackle the more modest, but perhaps more answerable question, of whether college sports pay off at the micro level.

Football and men's basketball are by far the most lucrative sports, raising $12.97 million and $4.25 million, respectively, in revenue per Division I-A school in 2003, or about 59 percent of total revenues (Fulks, 2005a, pp. 30, 48). Moreover, these two sports together generated an average of $7.95 million profit per school in 2003. The only other men's or women's sport to show an average positive profit was men's ice hockey, which had a profit

*Table 2*
**Financial Results, Intercollegiate Sports, 2003**
*(in thousands of dollars, on a per school basis)*

| *Division* | *Total revenue* | *Institutional support* | *Revenue without institutional support* | *Expenses* | *Total profit* | *Total profit without institutional support* | *No. of schools* | *No. of athletes/ school* |
|---|---|---|---|---|---|---|---|---|
| I-A | $29,400 | $2,800 | $26,600 | $27,200 | $2,200 | −$600 | 117 | 578 |
| I-AA | $7,200 | $3,400 | $3,800 | $7,500 | −$300 | −$3,700 | 124 | 487 |
| I-AAA | $6,200 | $3,200 | $3,000 | $6,500 | −$300 | −$3,500 | 86 | 304 |
| II with football | $2,600 | $1,500 | $1,100 | $2,700 | −$100 | −$1,600 | 151 | 357 |
| II without football | $1,700 | $1,100 | $600 | $1,900 | −$200 | −$1,300 | 131 | 186 |
| III with football | $2,509 | $1,681 | $828 | $1,570 | $939 | −$742 | 237 | 461 |
| III without football | $1,614 | $993 | $621 | $900 | $714 | −$279 | 188 | 244 |

*Sources:* Fulks (2005a, 2005b).
*Note:* Institutional support consists of transfers from the college or university to its athletic department.

of $353,000 per school. Thus, on average, from an accounting point of view, the big-time sports do yield a direct surplus that can support other activities at the university.

Table 2 shows financial results for intercollegiate sports for the three divisions of the NCAA for 2003. For each division, on average, the direction of net transfers is from the university to athletic departments, despite the surpluses in football, men's basketball, and men's ice hockey at the top levels. For Division I-A athletic programs, which are the most lucrative, Table 2 shows that the average athletic department took in $29.4 million in revenue in 2003 and had $27.2 million in expenses; however, included in this revenue figure is $2.8 million of transfers from the university to the athletic budget ("institutional support"). Thus, before accounting for institutional support, the average Division I-A program lost $600,000. Losses averaged $3.5 to $3.7 million per school in Divisions I-AA and I-AAA; $1.3 to $1.6 million per Division II member; and $279,000 to $742,000 per institution in Division III. In these calculations, institutional support does *not* include gifts made to the athletic department, which are reported separately by the NCAA as an athletic revenue source (Fulks, 2005a, b).

These accounting losses may not reflect true economic losses. For example, some spending by athletic departments may represent dissipating a surplus, so that the costs are exaggerated. Also, the reported costs of a tuition grant or stipend may be much greater than the actual marginal costs of educating or housing an additional student, especially if there is excess capacity in classrooms or dorms (Borland, Goff, and Pulsinelli, 1992). But even making the extreme assumption that grants-in-aid represent zero cost to the university, the data imply that Divisions I through III in the aggregate would still be making accounting losses in 2003. If grants-in-aid are included as a cost,

*Table 3*
**Average Athletic Department Real Profit per Institution, Not Including Institutional Support**
*(thousands of 2005 dollars)*

| *Division* | *1993* | *1995* | *1997* | *1999* | *2001* | *2003* |
|---|---|---|---|---|---|---|
| I-A | −$254 | −$243 | −$936 | $0 | −$654 | −$633 |
| I-AA | −$1,775 | −$2,066 | −$2,340 | −$2,510 | −$3,707 | −$3,903 |
| I-AAA | −$1,395 | −$1,702 | −$2,106 | −$2,852 | −$3,053 | −$3,692 |
| II with football | −$1,014 | −$1,094 | −$1,053 | −$1,369 | −$1,417 | −$1,688 |
| II without football | −$634 | −$729 | −$936 | −$1,027 | −$1,199 | −$1,371 |

*Sources:* Fulks (2005a, p. 23); http://www.bea.gov/bea/dn/nipaweb/TableView.asp#Mid, accessed April 3, 2006.
*Note:* Personal consumption expenditures price deflator used to correct for inflation.

the aggregate loss without institutional support was $1.47 billion; if they are excluded, the aggregate loss was $207 million (Fulks, 2005a, 2005b).

Moreover, reported financial results are likely to be affected by university accounting practices. For example, university-level expenditure categories such as utilities and maintenance may be placed in accounts other than the athletics department, or concession revenues from athletic events may be credited to the school's food service operation (Borland, Goff, and Pulsinelli, 1992, p. 218). In this regard, Fort (2006, p. 478) notes that athletic departments usually do not pay overhead to the university, other than small expenses such as cleanup from games and minor repairs. Thus, the typical athletic department is probably subsidized through services such as campus safety and electricity. But even ignoring such concerns, the figures in Table 2 do not suggest direct financial benefits from athletics to the rest of the university.

Table 3 suggests that Table 2's figures, indicating average reported losses for 2003, were fairly typical. Between 1993 and 2003, the average profit for an institution's athletic department in constant 2005 dollars for each of the Division I and II categories was negative in each year except 1999, when the Division I-A schools broke even. Schools in Divisions I-AA, I-AAA, or Division II with football lost over $1 million on average in each year, while the average Division II school without football lost at least $634,000 each year. Division I-A has shown the best profit results, with losses ranging from zero to $936,000. Data for the Division III schools were not reported in Fulks (2005b), but revenues for Division III sports are very low.

Some of the expenses shown in Table 2 went to support nonrevenue sports. According to Fulks (2005a, p. 30), in 2003 for Division I-A programs, men's sports (which include the two big-revenue sports of football and men's basketball) made roughly an average $6.1 million profit per school, while women's sports lost about $3.6 million.

The proportion of women participating in intercollegiate athletics has been rising since the late 1960s. For example, from 1966–67 to 1971–72, women as a share of intercollegiate athletes at degree-granting higher education institutions rose from 9.1 to 15.0 percent, while their proportion of the student body went from 39.7 to

41.8 percent. Title IX of the Education Amendments of 1972 outlawed gender discrimination at educational institutions. In the ten years following the passage of Title IX, women's representation rose sharply in the student body, reaching 51.7 percent, and even faster among those that are athletes to 30.4 percent (Secretary of Education's Commission on Opportunity in Athletics, 2003, p. 13; National Center for Education Statistics, 2003, p. 210). These figures suggest that Title IX caused the already increasing levels of women's enrollment and athletic participation to rise even faster. Part of the rising level of women's sports participation may be due to increased participation by girls in high school sports, a development that raises the stock of college women interested in athletics, and Stevenson (2005) has found evidence that Title IX increased high school girls' athletic participation.

In studying the effects of Title IX on athletic department resource allocation, Carroll and Humphreys (2000) examined data from Division I institutions over the 1990–95 period. The authors found that 35 percent of schools decreased the number of men's sports, while only 18 percent added men's sports offerings; in contrast, 83 percent added women's sports, and only 5 percent reduced them (p. 361). Thus, it appears that the big revenue sports of football and men's basketball are supporting a rise in women's sports. These changes may have been motivated by one of the options a school has for demonstrating compliance with Title IX, which is to show that the male/female ratio of athletes is equal to the male/female ratio of undergraduate enrollment (Secretary of Education's Commission on Opportunity in Athletics, 2003, p. 15).[9] Despite such apparent attempts to comply with the proportionality standard, as of the 2001–2002 academic year, on average schools' female representation in sports remained 13 percentage points behind female representation in the student body (Anderson, Cheslock, and Ehrenberg, 2006).

A university might choose to fund its athletic department because of indirect benefits to the rest of the institution. Evidence exists on two types of indirect benefits: financial benefits, whether from donations or state appropriations; and reputation, which can be judged by the quantity and quality of student applications. Many econometric studies have investigated the effects of sports success on donations, with mixed results (for reviews, see Frank, 2004; Humphreys and Mondello, forthcoming; Goff, 2004). The findings are sensitive to what variables are included: university fixed effects;[10] whether athletic success is defined in terms of spending, winning percentages, bowl appearances, or NCAA tournament appearances;

[9] The other options are to show that a school has a "'history and continuing practice of program expansion' for women, or . . . it is 'fully and effectively' accommodating the interests and abilities of women" (Secretary of Education's Commission on Opportunity in Athletics, 2003, p. 15).

[10] Including school fixed effects seems important in this context, since one might observe a positive cross-sectional correlation between alumni giving and athletic success that could reflect characteristics of a school's student and alumni populations. The fixed effect methodology at least asks a question more relevant to the school: if we achieve an increase in athletic success, how will that affect our student body and alumni? Of course, some changes may take a long time to have important effects, suggesting that one consider lagged effects.

whether the university is public or private; and whether restricted donations (gifts given for a specific purpose) or unrestricted donations are considered.

For example, Litan, Orszag, and Orszag (2003) used fixed effects methods and paid careful attention to heteroskedasticity, lags, and auto-correlation; they find that during the 1993–2001 period, football winning percentage at Division I-A schools was insignificantly negatively associated with alumni giving, with coefficients ranging from –$29,000 to –$4.5 million. Largely consistent with these results, Turner, Meserve, and Bowen (2001) studied alumni giving at 15 selective private colleges and universities over the 1988–98 period, also using fixed effects methods, and found that a higher football winning percentage increased the share of alumni who contribute only at Division III schools; however, for no type of program was there a significantly positive effect of football winning percentage on the level of giving. To the contrary, at Division I-A schools, a higher football winning percentage significantly lowered the giving level.

On the other side, Humphreys and Mondello (forthcoming) study a comprehensive panel of Division I schools over the 1976–96 period using fixed effects methods, while also paying attention to lags, heteroskedasticity, and the possible heterogeneity of treatment effects across public and private schools. The authors find significantly positive effects on restricted donations to public institutions, for bowl appearances ($1.17 million extra for appearing) and for NCAA men's basketball tournament appearances ($825,000 for appearing). For private institutions, only basketball appearances had a significant effect on restricted donations ($960,000), while football bowl appearances had an insignificant coefficient of –$1.2 million. These findings applied only to restricted donations, which are likely earmarked for athletic programs, and the authors found no significant effects of athletic success on unrestricted donations. However, if earmarked funds reduce the demand for institutional support for the athletic department, they may increase the level of resources available for the rest of the university. In addition, some case studies of individual universities also found that athletic success raised donations (Goff, 2004).

Athletic success for public universities might also make state legislatures more favorable to their funding. A recent study of 570 public universities from 1976 to 1996 used both school and state fixed effects, while considering lagged effects and heteroskedasticity, and found that fielding a Division I football team raised state appropriations the next year by about $2.6 million in 1982 dollars, or about 8 percent of the average appropriation (Humphreys, forthcoming). In 2003 dollars, this comes to about $6.2 million, or about 23 percent of the average revenue of Division I-A athletic programs, more than offsetting the accounting losses shown in Tables 2 and 3.[11]

Athletic success can affect the quality and quantity of students who want to go to a particular school. Studies based on data through the early 1990s found mixed results, with some authors showing that athletic success raised future students' SAT scores and others finding little effect (Goff, 2004). However, two studies using data from the 1990s

[11] The conversion to 2003 dollars is done using the Higher Education Price Index (HEPI) deflator. These data were taken from ⟨http://www.inform.umd.edu/CampusInfo/Departments/BFA/inflation2.html⟩, accessed February 21, 2006.

find that fielding a Division I football team (Sandy and Sloane, 2004) or making bowl appearances (Tucker, 2005) raise future students' SATs: these effects were a relatively modest 12- to 13-point SAT increase associated with moving from Division I-AA to I-A or going to an additional bowl game in the last five years. In addition, changing to a Division I-A level football team (that is, in a fixed effects context) raised the size of the university by about 2000 students (Sandy and Sloane, 2004). These results suggest that having good teams makes a school more desirable to potential incoming students.

These positive findings for the impact of athletic success should be tempered by the realization that none of the authors control for the endogeneity of athletic expenditures beyond including school fixed effects. It is possible that some schools are "on their way up" in general for other reasons, such as newly appreciated locational advantages or changes in endowments. Such changes may lead to success on many fronts: a good student body, the building of good teams, and the generation of further high levels of financial support. Moreover, as suggested before, these studies refer to partial equilibrium changes in spending or athletic success; that is, if all schools simultaneously increased their athletic spending, every game will still have a winner and a loser, and little or no increase in alumni donations might result. Nonetheless, the findings do suggest some positive indirect effects of individual schools' athletic success, holding other schools' behavior constant.

## Conclusions

Big-time college sports programs appear to extract rents from revenue-producing athletes by limiting their pay and requiring them to remain amateurs. These rents are spent on facilities, nonrevenue sports, and, possibly, head coaches' salaries. On average, the two big revenue sports of men's basketball and football run a surplus; however, college sports as a whole—including the nonrevenue sports—report operating losses. Some evidence suggests, although not unambiguously, that college sports have positive indirect effects on public and private contributions. Moreover, sports success appears to generate interest by students that may lead to a modestly stronger student body. In this consumer-oriented era for higher education, universities need to maintain their appeal to future applicants, many of whom are future alumni or future voters for state legislatures, and having successful sports programs may be one way to do this. The popularity of college sports events and of schools with big-time athletic programs suggests that the idea of amateurism may have some market value. Arms race considerations suggest that society may gain from some spending limits on college athletics. From an efficiency point of view, these societal gains would have to be weighed against the losses caused by movement down the supply curve for star athletes.

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