

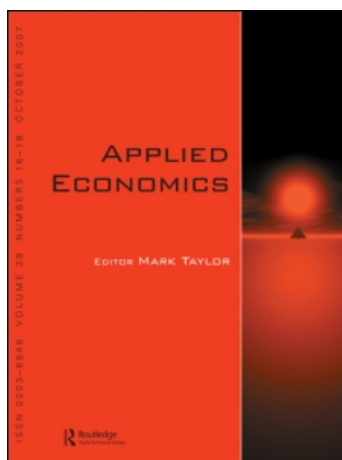
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### Can a sub-optimal tournament be optimal when the prize can be collectively consumed? The case of college football's national championship

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# Can a sub-optimal tournament be optimal when the prize can be collectively consumed?

## The case of college football's national championship

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One of the most heated debates in all of sports is the annual debate over major college football's national champion. Since its implementation in 1995, the Bowl Championship Series (BCS) system has often failed to quell the controversy concerning what team is the Division 1 Football Bowl Subdivision football champion. Many of the BCS controversies have spawned changes in the title selection format, while others are perhaps the result of certain changes. What remains now is the cry from some college football fans for an expanded 'national championship playoff,' though college and university presidents and many college football coaches continue to resist these cries. We try to explain this resistance to expanding the number of teams invited to compete for the BCS championship and the persistence of the two team playoff format in college football. For three championship eras – pre-BCS, BCS and a futuristic post-BCS expanded playoff – we first relate some of the controversial details to concepts such as optimal tournaments and the public goods concept of collective consumption.

### I. Introduction

One of the most heated debates in all of sports is the annual debate over major college football's national champion. The 'major' or Division 1 Football Bowl

Subdivision (DI-FBS; also formerly known as Division 1-A) college football championship is currently decided by the championship game of the Bowl Championship Series (BCS).<sup>1</sup> The BCS is a contract between five post-season bowl games and

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<sup>1</sup>At all other levels of football, D1 Football Championship Subdivision (formerly D1-AA), Division 2, Division 3 and in all other sports the NCAA itself runs a post season tourney. In all cases more than two teams are invited to the championship playoffs.

the six BCS conferences.<sup>2</sup> The BCS uses a formula to select the two teams to match up in their championship game.<sup>3</sup> Since its implementation in 1995, this one-game playoff has often failed to quell the controversy concerning what team is the D1-FBS football champion.<sup>4</sup>

The BCS championship game fails to determine a clear-cut champion in a number of situations. The BCS playoff is a two team, single elimination format that has a good chance of not inviting the best team, relative to a more expansive playoff. If more than two teams finish the season unbeaten or if a number of teams finish with the same number of losses as a team invited to the BCS championship game, then the BCS system may fail to invite the best team and thus can fail to produce a clear-cut national champion.<sup>5</sup>

For example, in the 2004 season, after three teams from ‘major’ conferences (Auburn University, University of Oklahoma, University of Southern California) completed the season undefeated, only two of these teams (Oklahoma and Southern California) could be invited to play for the BCS National Championship in the Orange Bowl. A decisive Southern California victory over Oklahoma (55–19) may have convinced many fans that Southern California was the D1-FBS football champion that year, but even Auburn’s less decisive win over Virginia Tech in the Sugar Bowl left some fans wondering whether the two ‘best’ teams had been matched in ‘the national championship game.’ The BCS selections were equally as controversial in prior years.<sup>6</sup>

Many of the BCS controversies have spawned changes in the title selection format, while others are perhaps the result of certain changes. What remains now is that the cry from some college football fans for ‘a national championship playoff,’ or in reality a national championship playoff field expanded beyond the current two-team format of the BCS, is stronger than ever, though college and university presidents and many college football coaches continue to resist these cries. We try to explain this resistance to expanding the number of teams invited to compete for the BCS championship and the persistence of the two team playoff format in college football. For three championship eras – pre-BCS, BCS and a futuristic post-BCS expanded playoff – we first relate some of the controversial details to concepts such as optimal tournaments and the public goods concept of collective consumption.

## II. The BCS as a Sub-Optimal Tournament

Judging from fan reactions, equally deserving teams were believed by many to have been left out of the current BCS national championship race in many years. Current arguments over representation in recent BCS title games emphasize the fact that the current system amounts to a two-team, one game playoff or tournament format. Thus, much of the discussion above fits well in

<sup>2</sup>The current BCS conferences are the Atlantic Coast Conference, the Big East Conference, the Big Ten Conference, the Big Twelve Conference, the Pacific Ten Conference and the Southeastern Conference. The current BCS bowls are the Fiesta Bowl, the Orange Bowl, the Rose Bowl, the Sugar Bowl and the BCS Championship Game.

<sup>3</sup>This is the same basic procedure as used for the 65 team NCAA basketball tournaments. In the football case a selection formula is used, while in basketball a committee decides using some of the same information included in the BCS selection formula.

<sup>4</sup>The current system began in 1995 under the name of Bowl Alliance. It only included four of the six BCS conferences and three of the BCS bowls. The name was changed from the Bowl Alliance to the BCS after 1997 when the Big Ten Conference and the Pacific Ten Conference and the Rose Bowl joined in.

<sup>5</sup>As is discussed later, college football teams can play different number of games, so it is natural to compare teams in terms of number of losses rather than number of wins.

<sup>6</sup>The 2004 controversy came on the heels of one in 2003, when Oklahoma was soundly defeated by Kansas State (35–7) in the Big XII Conference Championship game, but was invited to play in the BCS National Championship Game against LSU (in the Sugar Bowl). After Oklahoma’s loss to LSU, many fans were left wondering whether Southern California was the more appropriate opponent for LSU in the Sugar Bowl, especially after SC’s Rose Bowl win over Michigan and final record of 12–1. The 2003 controversy was very similar to the one in 2001, wherein Nebraska was handily defeated in their final regular season game against Colorado, eliminating them from the Big XII Championship game. Nebraska was, however, selected to face Miami in the BCS title game – a game they lost resoundingly, thus confirming the widely held view among fans at the time that Oregon should have been selected to play Miami for the BCS title. In 2000, Florida State University was, with one loss, selected to play the University of Oklahoma in the BCS Championship game over a one-loss University of Miami team, despite the fact that University of Miami beat Florida State University in their game that year.

the tournament theory literature.<sup>7</sup> For example, Rosen (1986) investigates the incentive prizes in sequential elimination events, wherein the rewards are increasing in survival. 'The inherent logic in [Rosen's] experiments is to determine the best contestants and promote survival of the fittest; and to maintain the 'quality of play' as the game proceeds through its stages' (Rosen, 1986: 701). In our argument, college football's regular season represents the first stage in a sequential elimination event, with rewards increasing in survival. Each of the approximately 120 Division I-FBS programs that begin the season hoping for a national championship traditionally play 12 regular season games. This is a relatively small sample from which to draw inferences. However, more and more conferences have followed the lead of the Big XII and SEC by sponsoring conference championship games, meaning that participants in these games will play at least 13 regular season games. The Atlantic Coast Conference (ACC) and Conference-USA are the newest additions to the original group. The NCAA also grants extra regular season games to teams that play any games outside of the continental United States in a season. This provision has in the past allowed the University of Hawaii, and any teams that play Hawaii in Honolulu, to schedule an extra game during the regular season. Considering all of the opportunities listed above, Kansas State managed to play in 15 football games during the 2003 season. Thus, recent moves by the NCAA to allow additional pre-bowl play helps promote a Rosen-style survival of the fittest process in college football.

Our thesis is perhaps even more closely tied to the theoretical construct in Ryvkin and Ortmann (2006). They describe a tournament as a procedure that ranks a set of agents or players. In terms of our college football thesis, two polar tournament formats described in Ryvkin and Ortmann (2006) are potentially applicable: binary elimination and round-robin. 'These formats allow (most) agents to perform repeatedly, typically against a stream of ever changing opponents' (Ryvkin and Ortmann, 2006: 2). A binary elimination tournament is one wherein the

players are matched pairwise, and the losers in each pair are eliminated, while the winners are matched pairwise again; this process continues until only one player remains. The exact realization, and efficiency, of the binary elimination format depends on the initial seeding and the history of play (Ryvkin and Ortmann, 2006: 2–4). In a round-robin tournament the players are matched pairwise in all possible matchings, and the winner of every match receives one point. The overall winner is determined by the accumulation of points (Ryvkin and Ortmann, 2006: 2–4).<sup>8</sup> Of course for  $n=2$ , as in the current BCS system, the binary and round-robin format are the same.

Following Ryvkin and Ortmann (2006: 7), we assume that the BCS' objective is to discover the best team in college football. If  $p$  denotes the probability that the *ex ante* best team wins a hypothetical BCS tournament, then  $p$  can be called the predictive power of the tournament. 'The higher the predictive power, the more confident the organizer can be that the tournament will reveal the best player as the winner.' (Ryvkin and Ortmann, 2006: 7)

In addition to the predictive power of tournaments, Ryvkin and Ortmann (2006) describe other elements of tournaments that would be important in our college football example. They assume that players do not strategically choose their efforts but always perform at the highest possible effort levels (proxied by ability). Thus, a tournament will be influenced only by the tournament's format, noise (i.e., the probability of upsets) and the distribution of players' abilities (Ryvkin and Ortmann, 2006: 5). Ryvkin and Ortmann (2006: 6) also associate two types of costs in a tournament format: time costs and measurement costs. The first of these are proportional to the number of stages in a tournament, while the second of these are related to 'the number of elementary measurements (binary comparisons) needed to determine the best player.' (Ryvkin and Ortmann, 2006: 7)

Upon balancing each format's costs and predictive power, using intermediate levels of uncertainty (i.e., upsets), Monte Carlo simulations in Ryvkin and Ortmann (2006: 23) reveal that for  $n=4$  players

<sup>7</sup> In addition to the use of tournament theory to examine sports contests as diverse as bowling, golf, horse racing and soccer (e.g., see Abrevaya, 2002; Grund and Gurtler, 2005; Lynch, 2005; Matthews *et al.*, 2007), recent research continues to examine employee and firm performance using tournament theory (e.g., Zech, 2001; Heyman, 2005; Martins and Lima, 2006; Sutter, 2006). In the earliest of that listed here, Zech (2001) contends that church pastor compensation is typically tied indirectly to performance through promotion tournaments, wherein exceptional church pastors are rewarded by being called to larger and more prestigious church congregations. Finally, Fee *et al.* (2006) use tournament theory concepts to examine the promotion of coaches in professional football.

<sup>8</sup> See Ryvkin and Ortmann (2006) for further discussion and also for additional references, Ehrenberg and Bognanno (1990a and 1990b) and Bognanno (2001) for more on binary elimination tournaments and Levin and Nalebuff (1995), Ben-Yashar and Nitzan (1997) and Esteben and Ray (2001) for use of round-robin formats in public choice settings.

the round-robin format is dominated by the binary elimination format and never arises as the optimal choice. For  $n=4$ , the binary elimination format's predictive power is greater than or equal to that of round-robin, and the costs of the binary elimination format fall below those of the round-robin (Ryvkin and Ortmann, 2006). The  $n=4$  case is the same as the so-called 'plus one' system wherein the fifth game of a BCS format would be a championship game played by two teams advancing from among the winners of two of the other four BCS Bowl games (Associated Press, 2005). The 'plus one' binary elimination format became widely discussed in 2004, when Auburn, Oklahoma, Southern California and Utah all finished regular season unbeaten and would have fit nicely into a four-team binary elimination playoff, using two of the BCS bowls for the first round games.

Additionally the Ryvkin and Ortmann (2006) results depend on the key assumption that the 'best' contestant is allowed into the tournament. If the 'best' contestant is not in the tournament, then there is no way that the tournament can produce the 'best' as the winner. In addition to the costs of running an expanded tournament mentioned above, there are also costs associated with expanding the number of contestants in a tournament. The tradeoff then facing tournament organizers is to balance the risk of not inviting the 'best' contestant in a small tournament with the risk of the 'best' contestant being upset in an expanded tournament (a larger tournament increases the chance the 'best' contestant will be upset).

Of course, any move toward an expanded playoff or tournament format for determining a football champion may come with the NCAA's seal of approval. Thus, college football's championship would be determined much like college basketball's championship that begins with 65 contestants, and would then be recognized as the NCAA Champion.

So, college football determines a BCS champion each year, but uses a suboptimal tournament to do so. Why university presidents, coaches, athletics directors and even fans may prefer this is discussed in the following section of this article.

### III. Collective Consumption and the Historical Determination of College Football's National Champions

A sampling of college football's national champions (from 1980 to 2005), as displayed at [ncaa.org](http://ncaa.org),

is presented in Table 1. As the table indicates, the various organizations identified by the NCAA have named 64 national champions over the past 26 football seasons (i.e., 2.46 champions per season). Between 1980 and implementation of the current BCS system in 1995, the annual average number of national champions was 3.13, while from 1995 through 2005 the annual average number of national champions was 1.55. The current BCS system was designed (ostensibly) to produce a 'true' college football national champion for fans and did in fact reduce the number of national championship claims by half.

Although it cut the number of [ncaa.org](http://ncaa.org)-listed national champions in half, given that the [ncaa.org](http://ncaa.org)-listed organizations have continued to select multiple national champions per year since 1995, the current BCS system has not completely succeeded. First, an average of about 1.50 champions per year means that the BCS system has failed to produce a single [ncaa.org](http://ncaa.org)-listed national champion about every other year. Second, and perhaps most importantly, as Table 2 shows, the number of AP-Media and BCS-Coaches' Poll champions has remained relatively stable over the years since 1980. These champions seem to be the ones that college football fans prefer to recognize as 'true' national champions. And, as Table 2 shows, for all three eras – 1980–2005, the pre-BCS era and the BCS era – the number of AP-BCS/Coaches' Polls national champions has (statistically) significantly exceeded one. In fact, the average annual number of AP-BCS/Coaches' Polls national champions during the BCS era has been the same as its pre-BCS counterpart.<sup>9</sup> The BCS has responded to this and the controversies detailed above by tinkering with its formula every year. Such tinkering is results-oriented and is a sign that the BCS format is not viewed as satisfactory even by the people who administer it.

This failure to reduce the number of national champions to one each year begs the question, might it be optimal to some of those involved in college football to name more than one school 'national champion' in a given year, and if so, how many? In a Lancasterian sense (Lancaster, 1966), the consumers of 'national championships' – the championship team's players, coaches, staff and fans – are not consumers of any trophy, ring or other symbol of a 'national championship' season. Instead, they are consumers of more intangible characteristics associated with the national championship, such as the satisfaction or pride that comes from the

<sup>9</sup>The difference between the average number of poll champions in the pre-BCS era of Table 1 (i.e., 1980–1994) and that from the BCS era is not statistically significant at the usual levels ( $p$ -value = 0.373).



**Table 1. Division 1 football bowl subdivision national champions, 1980–2005**

2005	Texas <sup>AP, BCS, USA Today</sup>	1989	Miami <sup>AP, UPI</sup>
	Southern California		Notre Dame
2004	Southern California <sup>AP, BCS, USA/ESPN</sup>	1988	Miami
2003	LSU <sup>BCS, USA/ESPN</sup>		Notre Dame <sup>AP, UPI</sup>
	Southern California <sup>AP</sup>	1987	Florida State
2002	Ohio State <sup>AP, BCS, USA/ESPN</sup>		Miami <sup>AP, UPI</sup>
	Southern California	1986	Miami
2001	Miami <sup>AP, BCS, USA/ESPN</sup>		Oklahoma
2000	Oklahoma <sup>AP, BCS, USA/ESPN</sup>		Penn State <sup>AP, UPI</sup>
1999	Florida State <sup>AP, BCS, USA/ESPN</sup>	1985	Michigan
1998	Ohio State		Oklahoma <sup>AP, UPI</sup>
	Tennessee <sup>AP, BCS, USA/ESPN</sup>	1984	Brigham Young <sup>AP, UPI</sup>
1997	Michigan <sup>AP</sup>		Florida
	Nebraska <sup>BCS, USA/ESPN</sup>		Nebraska
1996	Florida <sup>AP, USA/CNN</sup>		Washington
	Florida State	1983	Auburn
1995	Nebraska <sup>AP, USA/CNN</sup>		Miami <sup>AP, UPI</sup>
1994	Florida State		Nebraska
	Nebraska <sup>AP, USA/CNN</sup>	1982	Nebraska
	Penn State		Penn State <sup>AP, UPI</sup>
1993	Auburn		Southern Methodist
	Florida State <sup>AP, USA/CNN</sup>	1981	Clemson <sup>AP, UPI</sup>
	Nebraska		Nebraska
	Notre Dame		Penn State
1992	Alabama <sup>AP, USA/CNN</sup>		Pittsburgh
	Florida State		Southern Methodist
1991	Miami <sup>AP</sup>		Texas
	Washington <sup>USA/CNN</sup>	1980	Florida State
1990	Colorado <sup>AP</sup>		Georgia <sup>AP, UPI</sup>
	Georgia Tech <sup>UPI</sup>		Nebraska
	Miami		Oklahoma
	Washington		Pittsburgh

Source: ncaa.org.

Notes: Included among the other polling organizations listed at ncaa.org are the National Championship Foundation, Berryman, *The Sporting News*, Parke Davis, Sagarin, *The Seattle Times*, Billingsley, Helms, Houlgate, Football Research, Board, Dunkel, Litkenhous, DeVold, Williamson, INS, FB News, Matthews, FACT, *The New York Times*, Eck and Wolfe.

Key: AP (Associated Press) = Sportswriters and Broadcasters Poll from 1936 to present; BCS = Bowl Championship Series; UPI (United Press International) = Coaches Poll from 1950 to 1990; USA/CNN = Coaches Poll from 1991 to 1996; USA/ESPN = Coaches Poll from 1997 to 2004; USA Today = Coaches Poll from 2005 to present.

(near perfect) accomplishment of a team-oriented, ultimate goal. This satisfaction or pride often manifests itself through large parades, ring/trophy ceremonies and other forms of celebration of the team's accomplishment. Celebrations like these took place in Los Angeles to commemorate Southern California's national championship season of 2004. But, they also took place in Auburn, Alabama, given that numerous 'organizations' pronounced Auburn's 13–0 season of 2004 to be of national championship caliber.<sup>10</sup> Simultaneous celebrations of this sort

indicate that the 'satisfaction' that comes from a college football national championship has what economists refer to as *collective consumption* characteristics.

A collective consumption good is a good for which consumption by one consumer will not reduce the consumption of any other consumer (Holcombe, 1996: 97). As Holcombe (1996: 97) explains:

'This definition does not apply to most goods. For example, for each additional hamburger you

<sup>10</sup> Various scientific (i.e., mathematic/computer) polling services have declared Auburn as the 2004 National Champion (e.g., the Bowl Poll Index [BPI], EFI Ratings, GBE Poll, etc). Other Internet polls (e.g., fanspoll.com) and periodicals (e.g., *The Eufaula Tribune*) also voted Auburn as national champions. A few of these (e.g., fanspoll.com, *The Eufaula Tribune*, etc.) awarded national championship trophies to Auburn officials and 'The Parade of Champions' celebration was held in downtown Auburn on 15 January 2005 (auburn.edu, 2005).

**Table 2. The impact of the BCS on the number of AP (Media) poll and coaches' poll national champions per year**

Era	[(No. of Poll Champions/Yr.) - 1.000] <sup>a</sup>	<i>p</i> -Values <sup>b</sup>
1980–2005	0.154	0.021
1980–1994 (Pre-BCS)	0.133	0.083
1995–2005 (BCS)	0.182	0.083

Data Source: ncaa.org.

Notes: <sup>a</sup>For each era above, we calculated the difference between (No. of Poll Champions/Yr.) and 1.000, which is the value for a representative year within each era where there was a unified championship across the two polls.

<sup>b</sup>The *p*-values come from *t*-tests (one-tailed) of  $H_0: [\text{No. Poll Champs/Yr}] - 1 = 0$ .

eat, one less hamburger is available for everyone else; for each additional compact disc you purchase, one less is available for everyone else. A good example of a collective good is a television broadcast signal. If you turn on your set to watch a program, no other viewer will have to watch any less because of your viewing.'

College football's national championship resembles a collective consumption 'good' in that multiple teams can 'share' or 'consume' it. For example, a permanent sign on the scoreboard at Georgia Tech's Bobby Dodd Stadium reads 'National Champions 1917 1928 1952 1990.' Georgia Tech alumni and fans take pride in, and garner substantial satisfaction from, these accomplishments. Yet, no mention is made by Tech that the 1990 national championship was shared with other universities, such as the University of Colorado.<sup>11</sup> Interestingly, a permanent sign on the scoreboard at Folsom Field, home of the Colorado Buffaloes, reads '1990 National Champions,' again without an asterisk or footnote denoting any other 1990 champions, such as Georgia Tech. This anecdote, and others like it (e.g., stadium signs at Miami/Washington and LSU/SC, commemorating national titles in 1991 and 1993, respectively), suggests that alumni and fans from either school can partake of this satisfaction or pride without reducing the satisfaction level available to alumni

and fans associated with the other institution that comes from accomplishment of the same feat (i.e., winning the national championship).<sup>12</sup>

As with most collective consumption goods, an important question also arises here: just how many schools can claim a national championship in a given year? Holcombe (1996) points out that collective consumption goods may become congested and lose some or all of their collective consumption characteristics. According to Holcombe (1996: 100):

'A good fits the definition of a collective consumption good if the marginal cost associated with adding an additional consumer is zero. Note that this is an economic definition, not a technological one... Is a swimming pool a collective consumption good? If it is a large pool and there are few people swimming in it, then an additional user will not impose any costs on existing users... so the swimming pool is a collective consumption good... If the pool becomes very crowded, then it loses some of its collective consumption characteristics, and at the limit one could imagine a pool so crowded that an additional user could not use the pool unless someone in the pool got out. In this case the pool would be a purely private good...'

Barro (1997) makes the point that in sports consumers care more about the relative quality of the products (i.e., the teams) than about absolute quality. That is, fan interest is maintained where there is some competitive balance in sports leagues, and devising the least inefficient way to maintain this balance is paramount for league administrators. Barro's argument ties into the idea that there can be an overcrowded pool of national champions in a given year (or from year to year), and at the limit that pool can remain so crowded that fans and alumni lose interest in the sport altogether or focus their interests on winning conference championships. In this sense, the national championship could lose its *collective consumption* characteristics if the pool of champions remained crowded from year to year.

Examination of Table 1 reveals that the pool of champions has been more crowded in some years

<sup>11</sup> Georgia Tech's scoreboard sign commemorates their 1990 UPI National Championship that was awarded by a panel of Division I-FBS coaches. Colorado's 1990 national title was awarded by the AP (i.e., sportswriters and broadcasters).

<sup>12</sup> Admittedly our collective consumption goods argument is stronger when it focuses on the two most recognized (by fans, etc.) polls – the sportswriters'/broadcasters' and coaches' polls. However, other organizations/polls (e.g., Sargarin, etc.) are gaining broader acceptance over time. Our argument also holds for splits of any individual poll, such as the AP (i.e., two teams can collectively consume the AP National Championship in a given year). We also do not doubt that 'split' national titles of any sort spawn numerous 'what if?' arguments between fans of the relevant teams. Because these arguments involve hypothetical scenarios only, two or more schools can continue to claim national titles.

(e.g., 1980 and 1981) than in others (e.g., 1991 and 1995).<sup>13</sup> The pre-BCS system (i.e., the precursor to the current system) did produce six seasons from 1980 to 1994 wherein only one or two teams were recognized by the various ncaa.org-listed organizations as national champions. Thus, even the old system, perhaps only serendipitously, somehow avoided prolonged periods of crowding, thus preserving the *collective consumption* characteristics of the national championship.

The fact is that since the BCS system was implemented, only one of the competing national championship claims has been among teams from the same conference or teams in the same area. When the analysis is restricted to just the Coaches' *USA Today/BCS* and AP polls, none of the national championship claims over this period have been among teams from the same conference or teams in the same area. Even one other person in a swimming pool might crowd a single user if he or she persisted in trying to use the same areas. So, if LSU can claim the national championship in the south and Southern California can claim it on the west coast both fan bases might be happy.<sup>14</sup> The fans bases of each school might be less happy with a divided national championship claim, if the schools were the University of Texas and LSU who, while in different conferences, are in neighbouring states.

Despite the exhibition of collective consumption characteristics, many fans clamor for a singular national champion, but the persistence of the BCS system may be evidence that universities, coaches and other fans are content with a system where multiple universities and their fan bases can consume national championships each year.<sup>15</sup> And in addition to the collective consumption benefits described above, the current BCS system also allows for more coaches/teams to end their seasons on a winning note.

<sup>13</sup> Obviously, the pool will never have more than two champions in a given season if one restricts the pool to those teams that are named national champions by either of the major polls (currently AP that polls media members and USA Today that polls coaches).

<sup>14</sup> An anonymous referee points out that, when more than one team is named champion, fans of each team want ESPN's Sports Center and other national media outlets to declare their team National Champion. In other words, fans who view their team as the best want their view validated by others. We do not disagree here. In fact, our point is that such validation is available not only from ESPN, but also from the many ncaa.org-listed organizations that recognize a national champion in D1-FBS college football each year. These include, but are not limited to, organizations such as *The Sporting News*, *The New York Times* and the National Championship Foundation.

<sup>15</sup> Our 'sub-optimal tournament is optimal for college football' model is applicable to football only because college football is a 'small sample' sport, unlike basketball and baseball which are 'large sample' sports. Making the NCAA Tournament in basketball, or earning a bid to an NCAA Regional in baseball, is usually enough of a seal of approval for college basketball and baseball coaches, respectively. Because college football is a 'small sample' sport, only a small number of teams would earn a playoff bid relative to the number that participate in bowl games each year. One could also argue that university presidents and athletics directors want to 'muddy the waters' about which team is the national champion in football in order to generate more revenues and fundraising. Other college sports (e.g., baseball, etc) do not serve a fundraising/public relations function for universities in the way football often does.

<sup>16</sup> The extra practice time that accompanies participation in the current D1-FBS bowl system yields both current and future benefits to participating teams.

This consideration is not trivial. As Table 3 shows, there are currently (2007–08) 31 bowl games leading up to the BCS Championship. Such a format allows 62 teams to extend their seasons and 32 of the (presumably) top 64 teams in the country are put in a position by the current bowl system to end their year with a win.<sup>16</sup> Any move toward a playoff system like that used in NCAA men's basketball – where all but one of the (presumably) top 65 teams end their year on a losing note – might diminish the net satisfaction received by coaches, teams and fans. This consideration may represent an additional factor, one that is particularly important to principals of a small-sample sport such as football, that leads to coaches in general and some fans favouring the current system.

#### IV. Some Final Thoughts on College Football's National Championship

We have analysed the current BCS system for determining a major college football champion as a less than optimal playoff system. It is a playoff system because, as in every other team sport playoff system, a number of teams are invited to compete in a post season tournament to determine a champion. In the case of the NCAA men's basketball tournament the number of invitees is 65, while in the case of the BCS the number of invitees is two.

This small number of invitees increases the chances that the best team will not be invited to the 'BCS playoff,' which, if that occurred would mean that the best team would not win the BCS championship. We have also pointed out that there is a tradeoff because as the number of invited teams increases so does the chance of an upset and the best team not winning an expanded tournament.



**Table 3. 2007–08 Division 1 FBS bowl schedule**

Bowl	Date	Location	TV
San Diego Co. Credit Union Poinsettia Bowl	20 December 2007	San Diego, CA	ESPN
R&L Carriers New Orleans Bowl	21 December 2007	New Orleans, LA	ESPN2
PapaJohn's.com Bowl	22 December 2007	Birmingham, AL	ESPN2
New Mexico Bowl	22 December 2007	Albuquerque, NM	ESPN
Pioneer Pure Vision Las Vegas Bowl	22 December 2007	Las Vegas, NV	ESPN
Sheraton Hawaii Bowl	23 December 2007	Honolulu, HI	ESPN
Motor City Bowl	26 December 2007	Detroit, MI	ESPN
Pacific Life Holiday Bowl	27 December 2007	San Diego, CA	ESPN
Champs Sports Bowl	28 December 2007	Orlando, FL	ESPN
Houston Bowl	28 December 2007	Houston, TX	NFL
Emerald Bowl	28 December 2007	San Francisco	ESPN
Meineke Car Care Bowl	29 December 2007	Charlotte, NC	ESPN
AutoZone Liberty Bowl	29 December 2007	Memphis, TN	ESPN
Alamo Bowl	29 December 2007	San Antonio, TX	ESPN
Petro Sun Independence Bowl	30 December 2007	Shreveport, LA	ESPN
Bell Helicopter Armed Forces Bowl	30 December 2007	Fort Worth, TX	ESPN
Sun Bowl	31 December 2007	El Paso, TX	CBS
Humanitarian Bowl	31 December 2007	Boise, ID	ESPN2
Gaylord Hotels Music City Bowl	31 December 2007	Nashville, TN	ESPN
Chick-fil-A Bowl	31 December 2007	Atlanta, GA	ESPN
Insight Bowl	31 December 2007	Tempe, AZ	NFL
Outback Bowl	1 January 2008	Tampa, FL	ESPN
AT&T Cotton Bowl	1 January 2008	Dallas, TX	FOX
Gator Bowl	1 January 2008	Jacksonville, FL	CBS
Capital One Bowl	1 January 2008	Orlando, FL	ABC
Citi Rose Bowl	1 January 2008	Pasadena, CA	ABC
Allstate Sugar Bowl	1 January 2008	New Orleans, LA	FOX
Tostitos Fiesta Bowl	2 January 2008	Glendale, AZ	FOX
FedEx Orange Bowl	3 January 2008	Miami, FL	FOX
International Bowl	5 January 2008	Toronto (CAN)	ESPN2
GMAC Bowl	6 January 2008	Mobile, AL	ESPN
BCS Championship Game	7 January 2008	New Orleans, LA	FOX

Source: bcsfootball.org.

We further have argued that college presidents, coaches, players and fan bases may prefer this sub-optimal tournament because it allows more than one team and associated coaches, players and fan base to consume being a national championship. It also provides the added benefit of (currently) allowing 32 of the (presumably) top 64 teams to end their year on a winning note. As such, perhaps an improvement to the current system would entail simply using the BCS system to organize the bowl system and nothing else. That is, after the bowls are completed, the BCS could simply recede and allow the USA/ESPN Coaches' Poll to pick, without obligation, the team its pollsters believe is the best among the dozens of D1-FBS teams in the country.<sup>17</sup> Future theoretical work in this genre might incorporate a more passive BSC into our analysis.

Another way future research might expand our conceptual analysis would be to integrate the research

on voting cycles in college football polls, as well as research on other influences on college football's polls and rating systems. This is a rich literature, and includes, but is not limited to, Goff (1996), Dare and Holland (2004), Campbell *et al.* (2007), Fair and Oster (2007), and Paul *et al.* (2007). If a passive BCS – one that will allow the possibility of multiple, though few, national champions each year – is desired by coaches, players and fans, then a more complete understanding of college football polls is essential.

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<sup>17</sup> Had such a policy been in place in 2004, the most recent year with controversy included within the Table 1 time frame, perhaps Auburn would have joined Southern California as national champion.

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