

Competitive balance in the founding BCS conferences: Regular and post-season implications

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What is the BCS?

- “The Bowl Championship Series (BCS) is a five-game arrangement for post-season college football that is designed to match the two top-rated teams in a national championship game and to create exciting and competitive matchups between eight other highly regarded teams in four other games” (Bowl Championship Series, 2009)
- 2009 per game payout = \$35 million

What is the BCS?

- Six original automatic-qualifying conferences:
 - Atlantic Coast Conference (ACC)
 - Big East Conference
 - Big 10 Conference
 - Big 12 Conference
 - Pacific-10 Conference (Pac-10)
 - Southeastern Conference (SEC)
- Current BCS games and presenting sponsors:
 - Tostitos Fiesta Bowl
 - FedEx Orange Bowl
 - Rose Bowl presented by Citi
 - Allstate Sugar Bowl
 - BCS National Championship Game*
- * Added to the BCS lineup for the 2006 season

BCS Objectives

- When the BCS emerged from the Bowl Alliance in 1998, its creator, former SEC commissioner Roy Kramer, had three objectives:
 - Expand interest in the sport
 - Work within the bowl structure
 - Create a title game (Thamel, 2008)

Increased Balance?

- While not a stated objective, the BCS appears to have also increased competitive balance (Saraceno, 2007)
- “Implementation of the BCS would have an ambiguous impact on competitive balance” (Depken & Wilson, 2004, p. 205)
 - Enhance competitive balance if more teams were able to reach higher rankings through strength of schedule
 - Reduce competitive balance by perpetuating dominance of a small number of teams

What is Competitive Balance

- “Thought to be an important determination of demand for sporting events” (Humphreys, 2002, p. 133)
- Measure of how evenly talent is distributed among member institutions (Depken & Wilson, 2004)

Previous Studies

- Research has focused on how different variables effect competitive balance in NCAA college football:
 - Television appearances (Bennett & Fizek, 1995)
 - NCAA cartel (Eckard, 1998)
 - Institutional change (Depken & Wilson, 2004)
 - Conference membership (Perline & Stoldt, 2007)
- Using BCS
 - Data through 2001 and included all Division I football teams
 - "Implementation of the BCS did not significantly alter the competitiveness of college football" (Depken & Wilson, 2004, p. 207)

Study Purpose

- The purpose of the present study is to examine what effect, if any, the implementation of the Bowl Championship Series has had on the six conferences which make up the BCS
- Examined three five-year periods
 - Period One (P1): Five years prior to the start of the BCS (1993-97)
 - Period Two (P2): Five years immediately following beginning of the BCS (1998-2002)
 - Period Three (P3): Subsequent five years (2003-07)

Method

- Study followed recommendations of Leeds and von Allmen (2005) by examining both within-season and between-season variance
 - Within-season variance measured by calculating the standard deviation of the average winning percentage within conference games
 - Between-season variance measured by calculating the Herfindahl-Hirschman Index (HHI) to determine conference championship concentration year to year

Within-Season Method

- Standard deviation of winning percentages of in-conference game
 - Since each game, outside of a tie, will have one winner and one loser, average winning percentage is .500
 - $\sigma_A = \sqrt{(\sum (WPCT - .500)^2)/N}$
 - N = number of teams
 - $\sigma_I = .500 / \sqrt{G}$
 - G = number of games played by teams in the league
- Ratio of the actual standard deviation to the ideal standard deviation
 - $R = \sigma_A / \sigma_I$

Within-Season Results

Conference	P1 (1993-97) σ_A (R)	P2 (1998-2002) σ_A (R)	P3 (2003-07) σ_A (R)
ACC	.3121 (1.765)	.2833 (1.602)	.2394 (1.354)
Big East	.3132 (1.657)	.3196 (1.691)	.2506 (1.326)
Big 12 (since 1996)	.3296 (1.750), 93-95 .2945 (1.665), 96-97	.2955 (1.672)	.2567 (1.452)
Big 10	.2887 (1.633)	.2592 (1.466)	.2807 (1.588)
Pac-10	.2550 (1.442)	.2742 (1.551)	.2479 (1.430)
SEC	.2864 (1.620)	.2816 (1.593)	.2760 (1.561)
SWC (1993-95)	.2991 (1.582)	---	---

Within-Season Summary

- P1 to P2:
 - Four of six conferences showed increased competitive balance
 - Big East and Pac-10 showed decreased competitive balance
- P2 to P3:
 - Five of six conferences showed increased competitive balance
 - Only Big 10 had decreased competitive balance
- P1 to P3:
 - All six conferences showed increased competitive balance

Within-Season Conclusions

- ACC showed the greatest increase of competitive balance during study periods ($\sigma = .3121$ to $\sigma = .2394$)
 - Increased from 9 to 12 schools
- Big East showed strong overall increase in competitive balance from P1 to P3, despite decrease in competitive balance from P1 to P2
- Competitive balance in Big 10, Pac-10 and SEC mostly unchanged

Between-Season Method

- Herfindahl-Hirschman Index (HHI) is useful in that it reflects the concentration of championships in a sports league over time by measuring the distribution of championship shares (Humphreys, 2002)
 - Several studies involving competitive balance in college football have employed HHI (e.g., Depken & Wilson, 2004; Eckard, 1998; Perline & Stoldt, 2007)
- Championships defined based on conference standings or winner of conference championship game
 - Co-champions awarded fraction point (Eckard, 1998)

Between-Season Results

Conference	P1 (1993-97) HHI	P2 (1998-2002) HHI	P3 (2003-07) HHI
ACC	.82	.54	.36
Big East	.25 ^a .27 ^b	.44	.27
Big 12 (since 1996)	.50	.28	.44
Big 10	.22	.17	.36
Pac-10	.16	.18	.66
SEC	.68	.20	.28
SWC (1993-95)	.29 ^c .56 ^d	---	---

^a Miami not eligible for 1995 Big East championship. ^b Includes Miami as co-champion in 1995. ^c Texas A&M not eligible for 1994 SWC championship. ^d Includes Texas A&M as outright champion in 1994.

Between-Season Summary

- P1 to P2:
 - Four of six conferences showed increased competitive balance
 - Big East and Pac-10 showed decreased competitive balance
- P2 to P3:
 - Four of six conferences showed decreased competitive balance
 - Only ACC and Big East had increased competitive balance
- P1 to P3:
 - Four conferences showed increased or stable competitive balance
 - Big 10 and Pac-10 showed decreased competitive balance

Between-Season Conclusions

- ACC was the only conference to witness an increase in competitive balance between each of the periods, while Pac-10 has seemingly become more imbalanced
- Big 10 and SEC had the greatest competitive balance, as measured by HHI, in the periods after the implementation of the BCS
- Recent conference realignment seems to have positively impacted competitive balance in the two most impacted original-BCS conferences, the ACC and Big East

Study Limitations

- Previous studies measuring competitive balance in sports recommend using a normalized HHI to account for the change in number of teams in a league or conference over a period of time (e.g., Depken & Wilson, 2004; Owen, Ryan, & Weatherston, 2007)
 - We employed a standard HHI
- NCAA mandates 12 conference members for championship game
 - Conferences use different criteria to determine champions in the event of a tie

Overall Conclusions & Implications

- Overall greater competitive balance in all six conferences since beginning of BCS in 1998 in first measure
 - Only Big 10 and Pac-10 became less competitive balance in second measure (Big East about the same)
- ACC was only conference to show increased competitive balance for both measures in each period studied
- While within season balance measures indicate greater balance, four of six conferences showed decreased between season balance in P2 to P3 period
 - Suggests that while overall balance is getting better, the top teams remain strong year to year

Questions?

Thank you
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