"March Madness: The Racket in Regional Brackets"
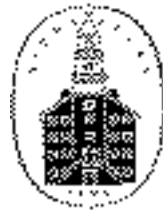
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If anybody thinks we're still a Cinderella, they
don't know a damn thing about basketball.

Casey Calvary,
Gonzaga *Bulldogs*

Every March four regions of the country — West, Midwest, East, and South —

each send sixteen teams to the NCAA men's Division I basketball tournament.[1] At the

beginning of the month, a committee of basketball conference commissioners convenes

to rank the teams in each region. The committee takes into account a number of factors

when deciding seedings, such as regular season record, schedule strength, performance in

conference tournaments, the Rating Percentage Index[2] and various polls. The purpose of

this brief note is to assess the performance of the seeding committee for each of the four

regions since 1985. Has seeding accuracy improved over time? Or, do underdogs

consistently defy the seedings?

The accuracy of each region's seedings is based on the following point system. One point is awarded in the first round when a higher seeded team defeats a lower seeded team. Points double with each round — two for the second (i.e., if any of the top four seeds advance), four for the regional semifinal (i.e., if either of the top two seeds advance), and eight for the regional final (i.e., if and only if the No. 1 seed wins the regional final). The total number of possible points is 32. Tournament results from 1985 (the first year for the present 64-team field) through 2000 are from *The New York Times* [1]. Point totals for each region are reported in Table 1.

(Table 1 about here)

A series of paired *t*-tests comparing the average point difference between one region and another revealed two statistically significant results: (i) West (mean point total = 20.88) and South (15.50), p = .004 and (ii) East (20.44) and South, p = .026. In other words, the seeded teams in the South (before 1998, the "Southeast") have not fared nearly as well as those in either the West or East.

For each region, point totals were regressed against a time trend:

$$\text{POINTS} = b_0 + b_1 \text{YEAR} .$$

Over the 16-year period (1985-2000), there were no discernible trends. Moreover, there were no discernible trends for the years 1985 through 1992. But, over the last eight years (1993-2000), the regression results for the South were (p-values in parentheses):[3]

$$\text{POINTS} = 3129 - 1.56 \text{ YEAR}$$
$$(.03) \quad (.03)$$
$$R^2 = .571$$

The South, in particular, has been particularly troublesome for the seeding committee in recent years.

If the seeding committee were just guessing, roughly half of the top eight seeds would advance to the second round (for a total of four points), half of the remaining top four seeds would advance to the regional semifinals (for an additional two times two or four points), one of the top two seeds would advance to the regional finals (an additional four points), and half the time the No. 1 seed would win the regional final (an additional $\frac{1}{2} \times 8$ or four points). In other words, if the seeding committee were right only half the time, point totals would be 16 or half of the maximum points possible in any region. A *t*-test of $H_0 : \mu = 16$ against the one-tailed alternative $H_A : \mu > 16$ yielded the following results: West (p = .0026); Midwest (p = .047); East (p = .012); and South (p = .66). In the South alone, the average was not discernibly different from 16 points.

CONCLUSION

The annual quest to identify each region's sixteen best men's college basketball teams has not been a slam dunk. The seedings for the NCAA men's basketball tournament have actually become less accurate in the last eight years, notably in the South. This region has consistently been the most difficult for the selection committee to accurately seed. Rarely, though, do the seedings follow form. As the tournament unfolds, invariably some favorites and big names are defeated. In fact, in the 64 regional tournaments held since 1985, all seeded teams have held seed only once heading into the Final Four.

**Table 1. Point Totals for Seeded Teams at the
NCAA Men's Basketball Tournament
by Region, 1985-2000**

		Region		
Year	*West*	*Midwest*	*East*	*South*
1985	21	18	32	12
1986	18	20	20	14
1987	26	22	18	13
1988	29	12	18	24
1989	13	29	17	11
1990	20	8	15	12
1991	26	16	19	20
1992	20	9	30	15
1993	20	21	30	23
1994	22	21	9	21
1995	29	17	15	17
1996	16	28	28	15
1997	30	29	19	9
1998	16	8	28	19
1999	19	21	19	13
2000	9	30	10	10

Notes

1.   The NCAA men's basketball tournament first expanded to four regional sites in 1952.

2.   The Rating Percentage Index (RPI) is derived from three component factors: Division I winning percentage (25 percent), schedule strength (50 percent), and opponent's schedule strength (25 percent). Games against non-Division I opponents are not used in calculating the RPI.

3.   The 1993-2000 regression results for all four regions combined were (p-values in parentheses):

$$\text{POINTS} = 6519 - 3.23 \text{ YEAR}$$
$$(.050) \quad (.052)$$
$$R^2 = .492$$

Reference

1. *The New York Times*, various issues.

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