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Numbers you can use—and numbers you should ignore

By David Niven / March 9, 2006

With the return of the NCAA men's basketball tournament next week comes buzzer-beaters, upsets, brackets and, of course, wagering.

The FBI estimates that more than $3.5 billion was bet on last year's tournament, the majority of that in office pools. A Chicago consulting firm pegged the cost of lost productivity for employee time spent studying the bracket, talking trash with co-workers and lamenting picking Kansas again at almost $1 billion per year.

Not only does it cost your corporate masters money, but it's illegal, right?

Wrong.

While a high-stakes sports-wagering operation evokes a certain outlaw quality, it turns out office pools are legal in Ohio.

"There is no problem as long as the proceeds are not kept by the operator," said Mark Anthony, a spokesman for the Ohio attorney general's office. "The total amount wagered must be distributed to the winner or winners. If the house keeps a percentage, then the pool would not be legal."

Anthony said the topic is a common source of confusion.

"We get this type of question this time of year and around the Super Bowl," Anthony said. "I'm glad you are getting this information out—it's educational for people."

In fact, he said, there was an Oscar pool in the AG's office last week, and he expects there will be an NCAA pool next week.

Anthony doesn't participate in the pools, however, and offers no help in figuring out the Final Four.

"I don't take those kinds of risks," he said. "I'll leave it to others to figure that out."

While the state thinks your office pool is just peachy, the NCAA begs to differ. In fact, on the bottom of the tournament brackets posted to its website in recent years, the association has added a message:

"The NCAA opposes all sports wagering. This bracket should not be used for sweepstakes, contests, office pools, or other gambling activities."

Especially if you plan to lose. But nobody plans to lose. Just ask the man who runs one of the most quoted college basketball sites on the web.

The RPI
Jerry Palm sees the traffic to his CollegeRPI.com website build as the NCAA tournament approaches. Palm's site replicates the ratings percentage index used by the NCAA to help determine which teams make the field.

"I hear from the office pool people," he said. "They want help figuring out these schools from the Missouri Valley Conference they've never heard of."

What he tells them is probably the last thing people expect to hear from an RPI expert who charges $20 per year for a look at his website: The RPI won't be much help in filling out a winning bracket.

"It's not a very good prediction source. It's just not that precise."

Palm said the RPI, which takes into consideration a team's winning percentage and the strength of its schedule, is good for distinguishing good teams from bad ones, but not for distinguishing a good team from a better team.

What does Palm look for when he fills out his bracket?

"Any team I choose for the Final Four has to have at least one first-round NBA-quality player," Palm said.

"For early round upsets, I look for teams with experience," he said, meaning a team that has been in the NCAA's in recent years or has a veteran starting lineup.

"And I like teams that have shown upset ability in the regular season by knocking off a power school."

This year, Palm suggests fans take a long look at Northern Iowa and Bucknell as potential first-round winners. Of course, he admits, that's just a guess.

"I'm not the king of the brackets," he said. "Last year I did OK. But, you know, in the NCAA tourney, stuff happens."

The math

By day, Edward Kaplan applies mathematical models to stemming the spread of HIV. But during long nights in March, he used to crumple up his ruined bracket sheets.

"I was always losing the office pool at Yale," Kaplan said. "And what was really stupid was I realized I wasn't using my training as a mathematician. These pools are a mathematics problem, a beautiful problem."

Kaplan said an NCAA bracket has 9 billion possible outcomes. That's a nine with 18 zeroes.

Or, to put it one more way: "If every person on earth each filled out 1.5 billion different brackets, then one person would get the entire sheet right."

Kaplan said the biggest mistake most fans make in filling out their brackets is that they work forward in time instead of backward.

"If you do the bracket forward, you get locked into decisions made in previous rounds. You make your Round 2 decisions assuming all your Round 1 decisions are correct, but they're not."

Kaplan begins his bracket by picking the champion: "You start with the winner, then work all the way back to the first round."

For example, if your bracket had Ohio State facing Tennessee in the third round, most people would ponder the question of whether the Buckeyes could beat the Volunteers.

"But you shouldn't spend your time comparing how they match up," he said. "You have to figure out which team is more likely to be there in the first place and pick it."

But everybody knows the pool winner picked a choice upset or two. How do you know how many times to gamble on a 10 seed over a 7?

That depends, said Kaplan, on how each round of your pool is scored.

Mathematically, the more a pool's point structure is weighted to the Final Four over the early rounds, the greater the payoff for choosing underdogs.

In other words, you might have a sheet that's smart for one pool but all wrong for another.
"If you use the same bracket for different pools, you are not playing logically," the mathematician said grimly.

Kaplan's process for choosing teams has evolved over time.

His first model compared head-to-head match-ups, common opponents and the common opponents of opponents. That algorithm produced a giant graph for estimating the outcome of any game.

"Unfortunately, creating the graph is very time consuming," Kaplan said. "But that's why God invented graduate students."

Kaplan's approach has since evolved to include more factors, including both data and expert ratings. And here's the ridiculously good news: He and his collaborators decided not just to share their findings on the web but to fill out your whole sheet for you.

At www.poologic.com, fans input the point structure of their pool, and the website produces a complete bracket. (Don't go to www.poollogic.com unless you want swimming pool supplies.)

"Push the button, and your bracket is filled out," Kaplan said.

Of course, even a good probability model has limitations.

"No model is perfect. These are chance events."

Although his model won't run until the tournament field is set, Kaplan has an inkling how it will turn out.

"Taking advantage of a little known flaw in Einstein's Theory of Relativity and applying Archimedes' principles, it's pretty clear...UConn's going to win," he said with a laugh.

The pitfalls

Not surprisingly, some gambling opponents see all these NCAA brackets as a gateway to problem gambling.

"Office pools are often the entry to illegal betting," said NCAA spokeswoman Gayle Dent.

Office pools might only be a dollar or two, but, "Gambling is a slippery slope," said Steve Riggs, the pastor of the Christian Family Fellowship in Grove City and an outspoken opponent of efforts to bring casinos to Ohio.

"If I was an employer, I would put a stop to office pools."

And gambling-addiction hotlines report a bump in calls during NCAA Tournament time.

But some gambling-addiction advocates doubt office pools create problem gamblers.

"There's any number of places the gambler can find to lose money," said Keith Whyte, executive director of the National Council on Problem Gambling,

"Gamblers chase action, and there's more than enough legal and illegal gambling outside the office."

Even if NCAA pools aren't a gateway to gambling addiction, Whyte worries that they present an "extraordinary temptation" to a recovering gambling addict, something akin to "setting up an open bar outside the office of a recovering alcoholic."

While Whyte is not much of a basketball fan, he does have advice for anyone thinking about their NCAA picks.

"People like to think of office pools the way a poker player thinks of poker," he said. "They think it's a skill. They think with more effort, if they study longer, find out who's injured, who's hot, then they'll win."

"People think they just need to invest themselves in the process and then they'll win. But the outcome is determined by chance—and skill doesn't beat chance."