



SOCIETY OF ACTUARIES

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Home run derby

Actuarial forecasts make it a media win for actuaries

by Cecilia Green

SOA Director of Public Relations

Baseball has been very, very good to me," doesn't just apply to the Chicago Cubs' slugger Sammy Sosa. It also has meaning for the actuarial profession. Through a public relations effort launched first by the Canadian Institute of Actuaries (CIA) and then the SOA, two actuaries representing the profession capitalized on their abilities to analyze future contingent events in this season's home run race.

CIA steps up to the plate

Early media speculation of who would break Roger Maris' 1961 record of 61 home runs in one season made this a natural subject during the CIA public relations committee's June meeting. With its PR consulting firm, committee members began brainstorming ways to provide links between individual actuaries and journalists that would be different from previous media contacts on government and social issues. "We wanted to tie sports into it," said Mel Norton, FCIA, a senior vice president at Aon Consulting Inc. in Toronto and self-admitted sports enthusiast.

Norton volunteered to run the numbers to come up with home run projections for Sosa, Mark McGwire,

and Ken Griffey, Jr., all mentioned as contenders to smash the 37-year record. He developed an actuarial model that accounted for factors such as slumps and minor injuries. "It was not a complicated exercise," Norton said, "not much more than an extrapolation of a probability distribution. There's a standard deviation involved; actuaries probably know more about that. Anyone else would only get the expected value."

A CIA press release issued in July states Norton's calculations suggest McGwire had a 97.14% probability of hitting more than 61 homers and was most likely to hit 70 home runs; Griffey a 65.46% probability, likely to hit 65 home runs; and Sosa, a 43.2% probability and likely to hit 63 home runs.

Norton also volunteered to be the source for interviews. He believed it would be a good opportunity to show how actuaries apply their skills to business and financial problems, using "the statistics of the past to project expectations for the future."

The press release was picked up quickly by news-hungry sports reporters and "snowballed," Norton said. He was quoted in three Toronto papers and two wire services and did more than 10 radio interviews. He had three TV interviews and his segment on Headline Sports, a Canadian cable TV station, ran an unusually long 18 minutes.

The SOA's turn at bat

A phone call from Fred Thompson, president of the Toronto Actuarial Club and a member of the CIA public relations committee, about the CIA's media success got the wheels moving



at the SOA. A call to John Dewan, an FSA who has spun his actuarial skills into making his company, STATS, Inc., a market leader in sports information, found a willing spokesperson for a U.S. entry in the media chase for new home run angles.

Dewan built a game-by-game actuarial model that considers such variables as current and past home run pace, age, expected playing time, the number of remaining at bats, the quality of opposing pitching, and how "home run-friendly" the ballparks are. With the help of the CIA's public relations agency, the SOA issued an Aug. 31 news release. In it, Dewan boldly predicted that if they continued at their current pace, McGwire would finish the season with 66 homers and get his 62nd on Sept. 16, and Sosa would break the record on Sept. 19, ending the season with 64 homers.

"There was tremendous interest from the media," said Dewan, whose company is based in a Chicago suburb. He was quoted in all the major Chicagoland dailies, including two articles in the *Chicago Sun Times*. An article in the *Kansas City Star* was picked up by the Associated Press.



Almost 10 radio interviews came from stations that spanned both coasts — from Seattle to Pittsburgh. Two national cable TV channels had Dewan as a guest — ESPN Sportscenter and MSNBC.

Dewan made an extra effort to get the “actuarial” angle into his media contacts, some of whom Dewan already had a relationship with because of his sports information business. “I’d say 75% of the time either the media mentioned it or I did.” He’d tell how what he does today relates to “his past life” as an actuary with Aon International but also admit that “it’s more fun to analyze the stats in sports than in insurance.”

It was even reported that stadium police had used data that STATS, Inc., gathered showing where each home run

by Sosa and McGwire landed in each ballpark. The security forces used it to decide where to place personnel to escort the lucky fan who may catch a home run to a safe area.

Forecasting can be a hit or miss proposition. In a Sept. 15 interview with the *Chicago Sun Times*, Dewan updated his projections to a 66-each tie finish, while admitting that so far McGwire and Sosa had been “making my projections look silly because they’ve been going nuts.” McGwire hit his 62nd homer eight days earlier than Dewan predicted, and Sosa, six days earlier.

“There’s no way to account for it — what the mind of man can conceive, he can achieve,” said Dewan, quoting Aon’s founder, W. Clement Stone. “It was unprojectable, unbelievable.

McGwire far exceeded what he had done in the past. You expect people to fall under that type of pressure, but they both rose to it.”

In the end, Norton was right on the mark with McGwire at 70 home runs. “Sosa exceeded my projected 63 home runs by three,” he said, “and Griffey was dyslexic, reaching 56, not 65.

“It wasn’t important that I get the numbers right, but to show the public what we actuaries have the power to do.”

And show them they did. Tallying Dewan’s and Norton’s efforts, Media Profiles, the PR agency, estimates that more than 10 million people were reached with the actuaries’ stories.

Mel Norton and John Dewan can be reached at, respectively, mel_norton@aonconsulting.aon.ca and jdewan@stats.com.

DEAR EDITOR

Heritage Foundation responds

Robert Myers suggested that we had committed “serious errors in methodology through improper simplification” in our recent paper on the returns to Social Security (“A glaring error,” *The Actuary*, September 1998). While we welcome much of Myers’ commentary, his article left a distorted impression of our methodology and its implications.

First, Myers is incorrect when he states that we assumed that an African-American male aged 21 lives to exactly age 69. In fact, we assumed a life expectancy of 73.8 years, a figure that takes into account future improvements in longevity (i.e., our typical African-American male receives benefits not for two years but for 6.8 years beyond the statutory retirement age of 67).

Second, we chose our method for calculating the typical rate of return to Social Security with careful thought. In our search, we considered three

methods. The first is the “expected value” method described by Myers, which involves summing the expected value of benefits and taxes on a year-by-year basis. The second involved what we called the “median value” return, which calculates the return to the 50th percentile in a population’s mortality distribution. This “median value” return is for the middle person in the population above whom half of the population receives more than this person and below whom half of the population receives less. The final method, and the one eventually selected, involved calculating the life expectancy for a group and then calculating the return to Social Security for a worker who lives to that life expectancy. This latter method typically yielded results that lay between the “expected” return and the “median” return.

Each of these methods has strengths and weaknesses. In his discussion, Myers chose to caricature the method that

we selected, while failing to note some of the disadvantages posed by his expected value method as a measure of the typical return faced by members of a group. Like all techniques, the expected value method is susceptible to distortion by skewed data. This can make it an unsuitable estimator of the return likely to be received by a typical member of a population.

For example, consider a lottery with a single prize of \$1 million. There are 1,000 contestants, each of whom pays a stake of \$900. According to the method suggested by Myers, the expected return for an individual from this lottery will be a positive \$100, even though 99.9% of the entrants will lose \$900. It would thus be misleading to suggest to potential ticket buyers that they will receive \$100.

While this is an extreme example, there is evidence that the returns from Social Security are highly skewed. Preliminary calculations we have

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