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SPORTS

Friday, Oct. 30 3:53pm ET What does average salary really *mean* in the NBA?

By Jonathan Sills Special to ESPN.com

The NBA lockout has resurrected a familiar argument that seems to appear every time the media spotlight shines on player salaries. How can the lucky few who play NBA ball, with an average annual income of over \$2 million last year, possibly complain about their situation? With every additional game cancelled, we're reminded of the wide income gulf separating the players from the fans that support them.

Unfortunately, "average salary" isn't necessarily the best statistic for describing how dollars were distributed among the 411 players on last year's NBA payroll. Eighty players made less than \$300,000, while Michael Jordan, the league's top earner, pulled in \$12.6 million *more* than the next-highest-paid player.

Remember in high school, when we learned about the mean, the median, and the mode? Most people writing about NBA salaries these days seem to believe the median is only something you worry about when changing lines on the highway, and "mode" is no more than a pleasant addition to apple pie. Perhaps it's time for a refresher course.

For any set of numbers, the mean is the most familiar and useful measure of the center. As the arithmetic average, it takes into account the number of observations as well as their value. At the same time, the mean is very sensitive to extreme values ... and sets of incomes are notorious for containing a few enormous salaries that tend to influence this number. The mean salary in the NBA last year? It's \$2.2 million, based on the initial contracts for the 1997-98 season. Some sources cite it as low as \$2 million, others as high as \$2.6 million, depending on which point in time the measurement was taken and whether or not you include signing bonuses.

The median, on the other hand, is the true middle value for any set of numbers. So if three NBA players earned \$1 million, \$2 million, and \$30 million, the median salary would be \$2 million. The mean or "average" salary would be \$11 million (\$33 million divided by three). Unlike the mean, the median doesn't move much based on small and large values. It's always the point where half the remaining numbers are greater and half are less. The NBA median salary last year was \$1.3 million -- a bit of a different story.

For a third and rather different way to get at what's going on with a set of numbers, we turn to the mode. The mode is simply the value that occurs most often. Anyone care to guess what the mode of last year's NBA salaries was? \$272,250. That's the current veteran's minimum. If you selected a player from the NBA randomly and asked them what they made last year, "272,250" would be the most common answer.

Armed with our understanding of the mean, median and mode, a quick scan of recent news stories on the lockout uncovers some statements that call for a citation from the mathematical police.

"Last year, the NBA middle class made an average of

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HELP CONTACT ESPN.COM INSIDER SERVICES TOOLS SITE MAP 2.6 million. On that scale, I'd take the NBA lower class."

-- Houston Chronicle

Technically, the median is a more representative measure of "middle class" income. While \$1.3 million is far from chump change, it does give a slightly different impression. If we define the "lower class" as the bottom 25 percent of all NBA incomes, that cutoff would be \$410,000. Still great money for a journalist.

"The players make an obscene amount of money -- the median salary is well over \$2 million!"

-- St. Louis Post Dispatch

Here we've got a writer who made the unfortunate choice of using a thesaurus instead of a dictionary. On my word processing program "middle" and "mean" are both suggested synonyms for "average," while "median" is also nominated as an appropriate substitute for "mean". In addition, remember that the most common player salary, the mode, is dramatically lower. This might qualify a statement like "the players make an obscene amount of money."

"The players want us to believe they literally can't 'survive' on \$2.6 million a year, the average salary in the NBA."

-- Washington Post

Again, who are "the players"? Of the 411 on contract at the start of last season, 71 percent made less than \$2.6 million. That's a healthy majority that would certainly support the following headline: "71 percent of NBA players failed to earn the league average last year." That story could also easily highlight the mode through an approach like this: "In fact, we found the most common salary among players to be \$272,250." Would a headline sarcastically stating players can't "survive" on that salary stir similar emotions in readers?

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In fact, for all the attention devoted to the Larry Bird exception, how much good does this do the playersas a whole, given that there are so few "Larry Birds" to make exceptions for? Together, the 20 highest-paid players in the NBA last season took home \$227 million. If you capped their salaries at \$6 million a year and redistributed the rest of the money to the 391 remaining players, you could add \$272,500 to every other players' salary -- hence, doubling the current veteran minimum.

No matter what side you're on in the NBA lockout, my job is to make sure we're true to the numbers and accurate in depicting what's actually going on with player salaries.

So what's the lesson here? When using summary statistics to describe a set of numbers, it's always a good idea to actually look back at the data itself to make sure the figure cited accurately represents the distribution of the set. Based on the frequency plot pictured above for last year's NBA player salaries, what does the term "average salary" mean to you?

Editor's Note: Care to comment on this subject? <u>E-mail Jonathan Sills,</u> and we'll print the best letters next month.



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