The Catch-Up Rule in Major League Baseball

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Two Problems in Major League Baseball

Major League Baseball (MLB) faces two difficult problems:

1. Attendance at MLB games is significantly down in 2018—9% in the first half of the season—in part because of their increasing length (currently, an average of 3 hours and 5 minutes).
2. Competition in the three regional divisions (East, Central, West) of the two leagues, American and National, is often lopsided, whereby most of the teams in each of the divisions stand little chance of making the playoffs (only 5 of the 15 teams do, including a wild card in each league).

These problems are not unrelated: A lack of competition diminishes fan interest in attending games or viewing them on TV or other electronic devices, reducing MLB revenues.

The steadily increasing length of MLB games, due in part to more commercials, also depresses attendance and interest. This length is at now at an all-time high, which is considerably longer than the average length of NFL, NBA, and NHL games. Unlike baseball, games in these other sports are timed.

We propose a remedy both to diminish the length and to increase the competitiveness of MLB games. It's called the *catch-up rule* and works as follows: If a team is ahead or goes ahead during its turn at bat in an inning, it would have only two rather than three outs before it must retire.

The catch-up rule addresses both the attendance and the competition problems:

• By shortening games, it reduces the boredom and fatigue of watching a game

for over three hours, not to mention extra-inning games (about 9% of the total).

- By limiting the team ahead to only two outs, it lowers the chance that it will pull ahead even more—making the game a blowout—so the team behind has virtually no chance of catching up and winning.

To estimate the effects of the catch-up rule, we have rerun all MLB regular and post-season games for the past 50 years, 1967–2017, as if the catch-up rule were in place for all games that ended without extra innings (100,160 out of 110,173 games, or 91%). (Our results do not change much for more recent periods.) We excluded games that ended in a tie and went extra innings, because the catch-up rule may affect when a tie is broken, and by which team.

This is not a problem if the catch-up rule would have made one team the winner after 9 innings when the game in fact went extra innings, because one can ignore the extra innings in rerunning the game. But there is a problem if the catch-up rule would have produced a tie when it did not in fact occur, because there would be no extra innings to rerun when applying the rule.

Length of Games

To estimate the length of 9-inning games under the catch-up rule, there are three cases:

1. Neither team is or becomes ahead in its at-bat half inning: 3 + 3 = 6 outs required.
2. One team is or becomes ahead in its at-bat half inning: 2 + 3 = 5 outs required.

3. Each team is or becomes ahead in its at-bat half inning: 2 + 2 = 4 outs required.

If a team is not ahead at the start of its at-bat half inning but becomes ahead during it, we count it as ahead only after the completion of the play that puts it ahead. To illustrate, assume there is a tie, and the at-bat team has 2 outs. If it then goes ahead, it earns the run or runs that break the tie, because it was not ahead before the completion of the play, but at the completion of the play, it would have to retire.

To compute the length of a game under the catch-up rule, we multiply the proportion of innings of each game by 6, 5, or 4, depending on which of the aforementioned three cases fits. The catch-up rule reduces the number of outs through the first 9 innings from an average of 52.5 (most games end with between 51 and 54 innings) to an average of 45.9, or by 13%.

This is somewhat less than the shortening that would occur if the number of innings were reduced from 9 to 7 (from an average of 52.5 outs to an average of 43.2 outs, or by 18%). While some commentators have proposed 7-inning games, the catch-up rule has the advantage of making games more competitive throughout the course of play and thereby more exciting to watch.

Competitiveness of Games

At the end of 9 innings, the catch-up rule narrows the average score difference between the winning and losing teams from 3.21 runs to 2.15 runs, or by 33%. Because games are more competitive under the catch-up rule, not surprisingly more games would have ended in ties.

This increase in tied games is considerable, going from 10,053 to 15,493, or by 54%. But because only 14% of games using the catch-up rule would go into extra innings, this increase would have only a minor effect on the average length of games, increasing it from 45.9 to 47.2 outs, or 1.3 outs (3%).

Strategic Adjustments with the Catch-Up Rule

If the catch-up rule is adopted, what adjustments might teams make to try to exploit it? Because there is a disadvantage for an at-bat team to be ahead and have only two outs, it will want to try to jump ahead by as much as possible before it incurs two outs. For example, it would not make sense under the catch-up rule for an at-bat team, ahead and with one out in an inning, to use a sacrifice bunt to advance on-base runners, because then it would have to retire immediately after the sacrifice.

The catch-up rule may lead to other strategic adjustments, such as in batting order, the use of pinch hitters and runners, and conditions under which to steal bases. But there is not a great deal that teams can do to capitalize on the catch-up rule, because success at hitting and stealing is highly individualistic.

Unlike other sports, a team's performance is much less a function of team effort than, for example, scoring in football, basketball, or hockey. Accordingly, we would expect the adjustments that teams might make in, say, batting order would not have much effect. In short, the basic features of baseball are likely to stay the same.

Practical Considerations

We recommend the catch-up rule be tried out first in amateur and youth leagues, then in semi-professional and the minor leagues, and finally be introduced in MLB. If it

works well to reduce the length of games and increase competition in the lesser leagues—and does not have unintended consequences—its adoption by MLB would seem justified.

Because baseball is the most traditional of major American sports, we would expect resistance from those who think such a rule violates the spirit of the game. But besides resistance from traditionalists, there will likely be opposition from the top teams because, by virtue of being better, they will have fewer outs in which to score.

With their status diminished, these teams will almost certainly view the catch-up rule as a threat to their supremacy. Ultimately, however, shorter games and more competitive leagues are likely to attract more fans and increase MLB revenue, which we believe counterbalances the benefits that now go to the elite, and usually wealthiest, teams.

Other Sports

By way of conclusion, we mention two other sports that we think would benefit from different forms of the catch-up rule:

- *Football*: If the offense leads in a game, give it three rather than four attempts to make a first down; the team behind would still have four downs, and both teams four downs if they are tied.
- *Basketball*: If the offense leads, give it 18 rather than 24 seconds to shoot in the final minutes of a game so it cannot so easily delay play and sit on its lead.

Unlike MLB, in neither the NFL nor the NBA is the inordinate length of games a major problem. But the lack of competition in these leagues may be more serious than in MLB.

It seems high time to level the playing field in all these sports. We believe the catch-up rule would do exactly this.