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Extra Innings: Examining the Pace of Play Problem with America's Pastime

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ABSTRACT

This thesis examines the slowdown and changes in action regarding pace of play that has occurred in Major League Baseball over the past 100 years. It demonstrates the correlation between the problematic decline in baseball viewership and the pace of play slowdown and examines hypotheses for why this slowdown may be occurring, including advances in mid-game advertising and commercialization, a shift in focus toward offense, the advent of sabermetrics and other advanced stat-keeping implemented by teams to better their odds of victory, and changes in player behavior in the time between pitches. Ultimately, this thesis concludes that behavioral changes, brought on by both advanced analytics and monetary incentive, are the primary explanation for the lengthening of the average baseball game over time and the shift toward inaction-based plays. It also identifies possible solutions that Major League Baseball could implement to help solve its pace of play problem, including the implementation of a pitch clock, encouraging action-based plays like stolen bases, and, ultimately, amending the state of distrust between the league and the Players Association.

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Chapter 1

Introduction

It's August 5, 1921. The Pittsburgh Pirates and Philadelphia Phillies are ready to get underway at Forbes Field for the final match of their three-game series. For Pittsburgh, this is an important one. The Pirates enter at 63-35 atop the National League, but the New York Giants are nipping at their heels, just a few games behind at 62-40. Pittsburgh needs this win to distance itself in the race for the NL pennant. For the Phillies—well, this one's not so meaningful. At 30-68, their season is in the gutter. They're on pace to finish at the bottom of the National League for the third year in a row. But it's the middle of summer; the season is only two-thirds complete. Play ball.

This isn't just your routine baseball game, though. It's history. For the first time, fans won't need to be in attendance to know what's happening during the game. They can just turn on their radio. Indeed, prominent Pittsburgh radio station KDKA will achieve a landmark moment in sports communication on this day: the first ever radio broadcast of a Major League Baseball game. The lucky man behind the mic is 25-year-old Harold Arlin. He's not exactly your typical sports broadcaster in the modern sense, though. Not at all. He's actually a foreman for Pittsburgh-based power company Westinghouse. And his setup? Not routine either. He'll be calling the game from a ground-level box seat with a converted telephone for a makeshift mic (Voices of the Game). It's not the most glamorous of circumstances for the first radio call in MLB history, but it'll do.

The game itself is pretty exciting. Hal Carlson gets the start for the Pirates, but his day on the mound isn't great; he lets up a run in the first inning before being bombarded for three more in the third. Carlson is lucky that his teammates put two on the scoreboard in the bottom of the second inning to keep it a close contest but not lucky enough to stay on the field. Manager George Gibson pulls him before the fourth.

From there, reliever Jimmy Zinn pitches six innings of beautiful ball, allowing just one more run. The Pirates give him support, sending home three runs across innings five and six. There is a moment of doubt after Zinn's single allowed run crosses home plate, as Philadelphia only trails 5-4 heading into the bottom of the eighth. But that doubt vanishes when the Bucs score three more on back-to-back-to-back batters, the last of the trio being Zinn himself with an RBI single. It's smooth sailing in the top of the ninth, and that's the ballgame. Final score: Pirates 8, Phillies 5. The game zips by in 1 hour, 57 minutes—a little bit long for that era, but only just so. The Pirates will get back to work tomorrow against the Brooklyn Robins in a game that ends up going 12 minutes shorter (Baseball Reference).

Now, let's skip ahead 98 years. It's October 23, 2019. Baseball has evolved from a simple American pastime into a cultural phenomenon embedded in the fabric of society. It's time for the World Series, one of the most prestigious major-league championship events on Earth. We're a long way removed from the first MLB radio broadcast: a game that only saw a couple thousand in attendance at Forbes Field. Today, 43,357 people have packed into Minute Maid Park in Houston—and 11.93 million more are tuned in via FOX—to witness Game 2 of the World Series between the Houston Astros and Washington Nationals (Baseball Reference). The man behind the mic? Joe Buck, of course. He's one of the most iconic sports broadcasters on television.

The Nationals are playing in their first ever World Series, and things have gone well so far. Washington stole Game 1 in Houston 5-4 the day before, and they've kept pace with the home favorites today through six innings, the game tied 2-2 with the seventh inning about to begin. And then the floodgates open. Astros pitcher Justin Verlander, 99 pitches into a stellar two-run outing, gives up a solo home run to Kurt Suzuki on the second pitch of the inning to give Washington the lead. After Verlander walks the next batter, manager A.J. Hinch pulls his starter for All-Star reliever Ryan Pressly. Pressly gets two outs quickly, but the damage is far from over. The next three batters—Howie Kendrick, Asdrubal Cabrera, and Ryan Zimmerman—all single to bring in runs. By the time the inning ends, the Nats have taken an 8-2 lead (Baseball Reference).

Washington would never look back in Game 2, scoring four more in the final two frames and allowing just one run in the bottom of the ninth to win 12-3 and take a 2-0 series lead (Baseball Reference). The Astros will look to get revenge two days later in Washington.

The Nationals and Astros may be most concerned about taking home the hardware, but there's a serious underlying problem brewing here. Game 2 of the 2019 World Series began at 8:08 p.m. local time. It ended at 12:09 a.m. the next day. All in all, a World Series game between the Nationals and Astros that went the same nine innings and had only two more total runs scored than the Phillies-Pirates game from 1921 lasted 4 hours, 1 minute—an increase of 2 hours, 4 minutes from the game played 98 years ago. Game 3 will prove to be even longer, clocking in at 4 hours, 3 minutes. No game in this seven-game series will run shorter than 3 hours, 19 minutes (Baseball Reference). Where did all this extra time come from?

The pace of play slowdown in Major League Baseball is an issue that has been plaguing the sport in recent years. This World Series game may be an outlier, but the fact remains that the

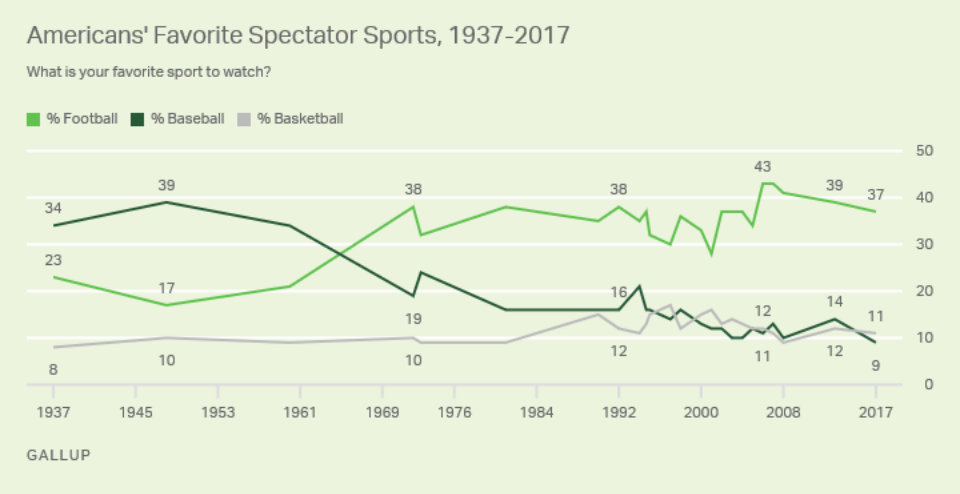
average baseball game in 2019 lasted 3 hours, 5 minutes. That's still a slowdown of 1 hour, 18 minutes from the average 1-hour, 47-minute baseball game from 1920. And this dramatic increase in total game time appears to be affecting viewer behavior. That number of 11.93 million viewers may seem large in a vacuum, but it was actually the lowest for a Game 2 in the World Series on record (World Series Ratings Chart). It shouldn't happen like that; Game 1 was a thriller that resulted in a 5-4 victory for the underdog Nationals—what's not to like about that? The problem? Game 1 started at 8:10 p.m. Central Standard Time and lasted 3 hours, 43 minutes. People just don't have the time or patience to dedicate that much of their day to watching a baseball game, even one on the grandest stage of all.

And the numbers are only getting worse. An event that saw television viewership as high as 52 million for Game 7 in 1986 struggled to reach that mark across the entire six-game series in 2020, which totaled just under 58 million viewers (World Series Ratings Chart). It's worth noting that those numbers came in the midst of the COVID-19 pandemic, in which only limited in-person attendance—just over 11,000—was permitted for each game. So, the primary way for people to tune in to watch the biggest baseball series of the season was via their television set, and MLB still saw a decline in ratings. It may come as no surprise to learn that every game of the 2020 World Series ran well over 3 hours, topping out at a 4-hour, 10-minute ordeal in Game 4. The correlation between game length and declining viewership seems too strong to be a coincidence, and the numbers (addressed in the next chapter) back it up.

It's imperative for Major League Baseball to address this issue, as baseball is slowly losing relevance in a sports-happy world. A 2017 poll conducted by Gallup found that Americans list football and basketball as their favorite and second-most favorite sports at 37% and 11%, respectively. Baseball, meanwhile, trails in third place with just 9% of the vote. This is

a stark contrast from the earliest version of this Gallup poll, conducted in 1937, which lists baseball as Americans' favorite sport with 34% of the vote (football places second with 23%). That adds up to a significant 25% drop over the course of 80 years (Norman, 2018).

Figure 1. Americans' Favorite Spectator Sports, 1937-2017



Source: Gallup (2018)

Surely other factors have contributed to this stark change, including football's marketability, brand presence, and media omnipotence. But the pace of play slowdown isn't doing baseball any favors, as its 9% showing in 2017 marked the sport's first dip below the 10% threshold since the Gallup poll began (Norman, 2018).

What can baseball do about its pace of play problem?

Well, before MLB can start thinking about solutions, it needs to identify the culprit. A number of factors that could be contributing to this issue, but a few in particular are most worth investigating: the increase in advertising and mid-game commercialization, a shift in focus toward offensive production, the introduction of sabermetrics and advanced stat-keeping, and changes in player behavior.

We can hypothesize explanations for these developments. Perhaps baseball games are lengthening over time because the permeation of advertising within the game is intruding upon the pace of play—advertisers want more air time. Maybe a focus toward offense—more plate appearances and more runs scored—is lengthening the game. Or perhaps sabermetrics are to blame. Maybe baseball teams nowadays are making more time-consuming mid-game adjustments on the mound, in the field, or in the lineup because the sabermetrics tell them that making an adjustment betters their chances of victory. Or perhaps MLB's slowdown stems from simple changes in player behavior. Maybe more players today are taking more time to "think" about how to pitch the baseball, or taking more practice swings in the batter's box before stepping up to the plate, or calling more mid-plate appearance timeouts to prepare for the upcoming pitch.

In this thesis, we examine the evidence supporting each of these hypotheses, determine which is the most likely to be causing baseball's pace of play deceleration, and prescribe possible solutions to this issue that has been plaguing what was once America's great pastime.

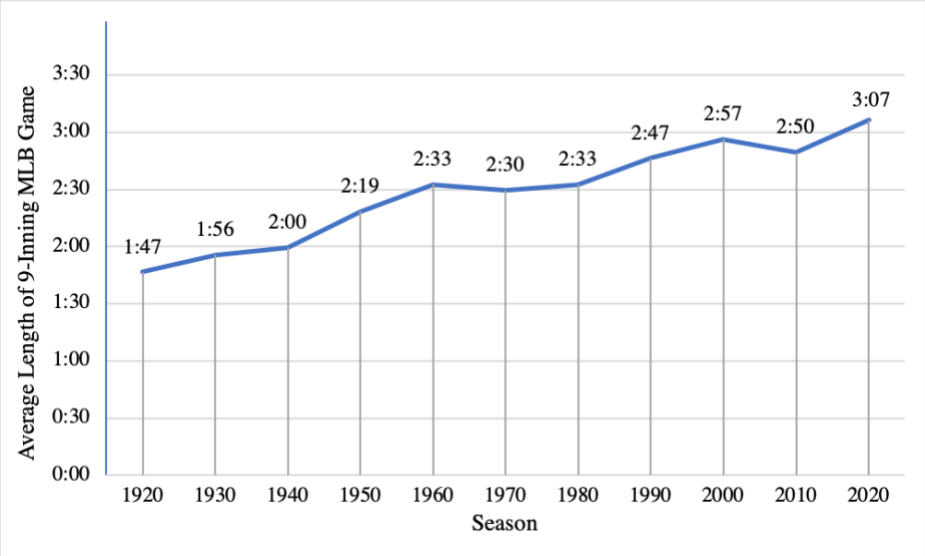
Chapter 2

The Correlation Between Pace of Play and Declining Viewership

Before we can dive into the nitty gritty of each hypothesis surrounding baseball's pace of play slowdown, we must first demonstrate a correlation between pace of play and declining viewership to determine whether or not this is problematic enough for Major League Baseball to consider adjusting. It may be too difficult to prove causation, as there are too many factors that go into determining just how many people watch a particular baseball game, but finding a strong correlation between diminishing television ratings and increasing average game length would be a good start.

Baseball Reference shines a white-hot light on game length: there is absolutely no denying that the average baseball game has become significantly longer over time.

Figure 2. Average Length of 9-Inning MLB Game over 100 Years



Data adapted from Baseball Reference and Beyond the Box Score

Unfortunately, Baseball Reference doesn't list the exact average game length for the years 1920 and 1930, so this thesis borrows estimates from Scott Lindholm's article "Baseball

Game Length: A Visual Analysis" (2015) for each of those years. Also, to keep things on a level playing field, the averages present in the table above are for 9-inning games, excluding games that go into extra innings.

The evidence is as clear as day: baseball games have gotten longer—up from an average of 1 hour, 47 minutes in the era of Babe Ruth and Rogers Hornsby to 3 hours, 7 minutes in the era of Mike Trout and Bryce Harper.

But what about viewership? How much has baseball declined in the public eye over time?

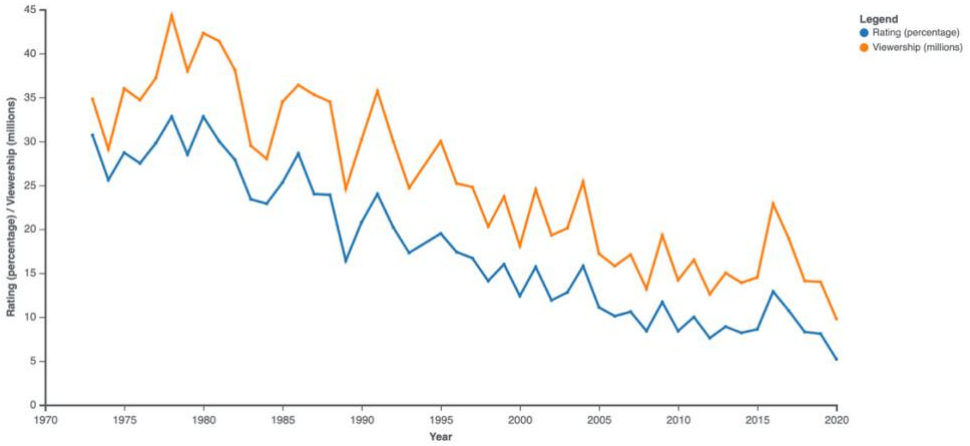
Let's start with in-person attendance. It's no surprise that the average number of spectators at an MLB game has increased significantly since 1920's 7,391 per-game attendance—now up to 28,203 in 2019 (Baseball Reference). After all, the United States' total population has increased from 106 million in 1920 (Census Records) to 331 million in 2020 (Worldometer). With the nation's head count more than tripling in the past 100 years, it seems obvious that Major League Baseball's attendance numbers would reflect this change.

But the key information lies within the recent data. MLB per-game attendance peaked in 2007 with 32,696 fans making up the cheering section of the average ballgame. The numbers then settled into this groove between 30,000 and 31,000 for the next six seasons before a dip in 2014—the first season in which the average 9-inning baseball game eclipsed the 3-hour mark—with mean attendance falling to 30,345 from 30,451 the year before. And in every season since, attendance has continued to drop, reaching the aforementioned 28,203 in 2019: the lowest per-game attendance MLB has seen since 2003 (Baseball Reference). Certainly, rising ticket prices haven't helped; the cost of the average ticket is up from $22.21 in 2006 to $34.04 in 2020 (Gough, 2020). But the average household income has risen right alongside, up nearly $10,000

since the economic recessions of the late 2000s and early 2010s (Horowitz et al, 2020). Ticket prices can't be the only thing to blame.

And now for television. Our most consistent and well-documented TV viewership data sprouts from the World Series, so we'll stick with the Fall Classic for this exercise. We've already gone over how viewership in the World Series has tumbled; 54.86 million TV viewers for Game 6 between the Kansas City Royals and Philadelphia Phillies in 1980 remains the summit for single-game World Series spectatorship, whereas 8.95 million for Game 3 in 2020 represents the all-time valley (World Series Ratings Chart). But Game 3 wasn't the only 2020 World Series game to spit out disappointing numbers. All six contests marked new lows for viewership in terms of game number (i.e. Games 1 through 7). The 2020 World Series didn't feature a Game 7 since the Dodgers defeated the Rays in six, but no worry! 2019's Game 7 comes through with the lowest Game 7 turnout on record at 23.22 million viewers (World Series Ratings Chart). Remember, the 2020 World Series occurred in the midst of the COVID-19 pandemic, with limited in-person attendance. That means TV would be the primary way to tune in to MLB's grandest yearly event. But the interest just wasn't there.

Figure 3. World Series Ratings and Viewership by Year



Source: Wikipedia, data adapted from Nielsen

Data from Nielsen (adapted into graph format by Wikipedia) shows how both television ratings and total viewership have been in decline since data tracking began in 1973. Aside from a slight uptick in 2016—a thrilling seven-game World Series that saw the snake-bitten franchises of the Chicago Cubs and Cleveland Indians each trying to end a title drought of over 50 years—World Series ratings, especially recently, have been on the downturn.

We know that 2019 and 2020 saw record lows for World Series television viewership. Now let's flip over the coin and compare those numbers with the all-time highs.

Table 1. Record Lows vs. Record Highs in World Series Television Viewership

	Record Lows		Record Highs	
Game No.	**Viewers (millions)**	**Year**	**Viewers (millions)**	**Year**
Game 1	9.195	2020	43.510	1978
Game 2	8.950	2020	42.990	1980
Game 3	8.156	2020	43.810	1978
Game 4	9.332	2020	39.220	1978
Game 5	10.059	2020	48.990	1982
Game 6	12.267	2020	54.860	1980
Game 7	23.217	2019	52.100	1986

Data adapted from Sports Media Watch

Each of the single-game highs comes from the 1970s and 1980s with three alone stemming from the 1978 World Series, the single-series owner of the highest average viewers per game at 44.279 million (World Series Ratings Chart). It makes sense. 1978 pitted the New York Yankees against the Los Angeles Dodgers, two teams that met in the Fall Classic the year prior and represent the two largest markets in the United States. But did pace of play also play a role? It's possible. Aside from Game 4's 10-inning affair, no game in the 1978 World Series surpassed 2 hours, 56 minutes in length. Meanwhile, not a single contest in the 2020 World Series slipped under the 3-hour mark (Baseball Reference).

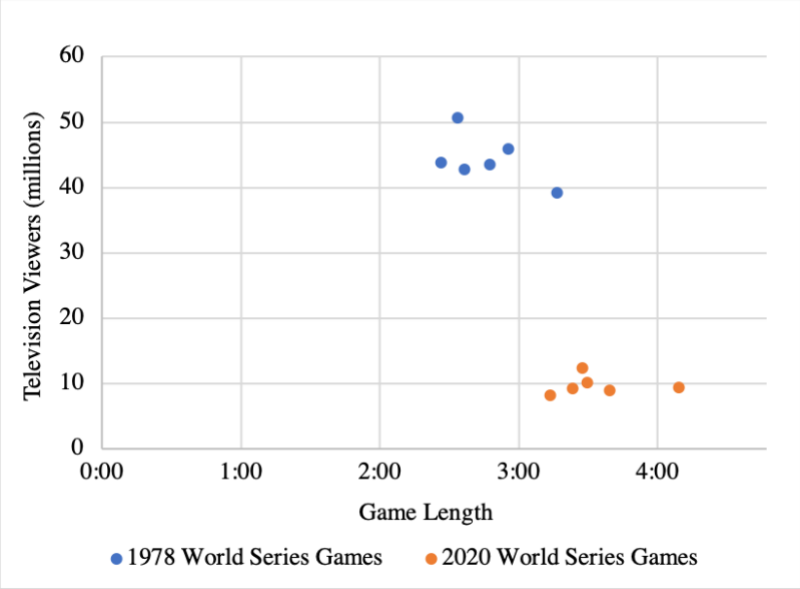
Table 2. Comparing Viewers and Game Length for 1978 and 2020 World Series Games

	1978 World Series		2020 World Series	
Game No.	**Viewers (millions)**	**Length**	**Viewers (millions)**	**Length**
Game 1	43.510	2:48	9.195	3:24
Game 2	42.720	2:37	8.950	3:40
Game 3	43.810	2:27	8.156	3:14
Game 4	39.220	3:17*	9.332	4:10
Game 5	45.870	2:56	10.059	3:30
Game 6	50.600	2:34	12.267	3:28

Data adapted from Sports Media Watch and Baseball Reference (asterisk denotes extra-inning game)

As one might guess, the viewership and game length of these two World Series show a strong inverse correlation—the shorter games had more viewers, and the longer ones had fewer.

Figure 4. Comparing Viewers and Game Length for 1978 and 2020 World Series Games



Data adapted from Sports Media Watch and Baseball Reference

So, does the data empirically prove that longer games (i.e. slower pace of play) equals lower viewer turnout? No. That conclusion would be a bridge too far; there are just too many other possible factors that would need to be assessed—market size, popularity of other sports at the time, network availability, etc.—before we can come to an accurate answer. However, the

data *does* present strong correlation between longer games and lower viewership, which is what we set out to prove in the first place. This correlation means that pace of play *could* be a reason for the decline in baseball's media presence and popularity. And that "*could*" should be enough reason for MLB to investigate solutions to combat the slowdown that *could* be turning away audiences.

Chapter 3

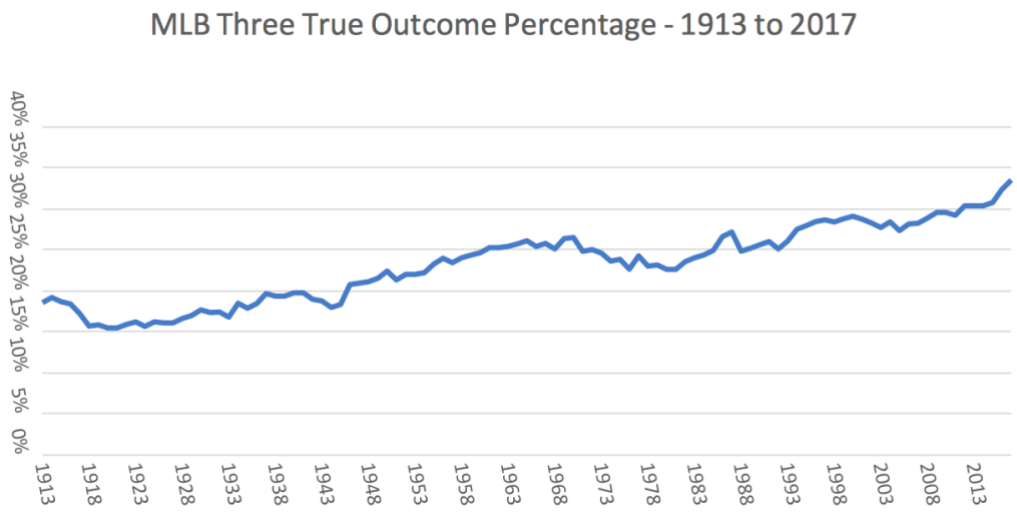
A Lack of Action

Although “pace of play” and “game length” have been used interchangeably throughout this thesis, it’s important to note that the two aren’t exactly equivalent. Game length is just the duration of a baseball game from the opening pitch to the final out. Pace of play is this duration paired with the events that take place during a baseball game: walks, home runs, hits, strikeouts, pitching changes, replay reviews, everything. Each of these events dictates the ebb and flow, or the pace, of a baseball game. And the way this ebb and flow has evolved over time could prove problematic for MLB.

The last few years in particular have seen baseball’s pace shift toward a focus on the three true outcomes: walks, home runs, and strikeouts. The three true outcomes essentially reduce baseball to a game played by three: the pitcher, the catcher, and the batter. This generalization isn’t always the case—sometimes a potential home run is snagged by a fence-leaping centerfielder, and sometimes a strikeout on a dropped third strike requires a throw to first base from the catcher—but in general, a sport that typically employs at least 10 players on the baseball diamond at all times reduces that count to three when a three-true-outcomes play occurs.

The walk, home run, and strikeout were relatively rare in baseball’s early days, making up just 15% of all plays in the early 1920s. But then Babe Ruth and his revolutionary power hitting came along, and the three true outcomes have been on the rise ever since, making up over a third of all total plays in 2017.

Figure 5. Percentage of Plays Resulting in the Three True Outcomes, 1913-2017



Source: Society for American Baseball Research (2018)

The three true outcomes themselves don't necessarily contribute to the average baseball game's length. A home run only takes a couple seconds longer to complete than a double, and a six-pitch strikeout is only a few seconds quicker than a six-pitch groundout to the shortstop. But they could be contributing to baseball's decline in viewership nonetheless. Why? Because the three true outcomes represent an underlying issue in baseball: inaction.

Think about it this way. As mentioned before, three-true-outcomes plays simplify the game of baseball to the pitcher, the catcher, and the batter. That means you have seven fielders (and maybe a couple baserunners) standing around doing nothing. No athletic dives for fly balls in centerfield, no suave turnaround throw-outs from the shortstop to first base, no runners scrambling from base to base to beat out a tag, no right-arm rockets from the left fielder to home plate in an effort to stop a score. None of it. With the three true outcomes, there is an intrinsic lack of "action" to baseball's pace of play. Could this "lack of action" be contributing to baseball's sinking viewer base? Perhaps. Sure, baseball diehards can learn to appreciate a hard-

fought drawn walk or a highly skilled three-pitch punchout, and the home run is pretty much always an exciting play. But to the casual fan, perhaps these plays aren't as thrilling since there are a whole bunch of people standing around doing nothing.

Even home runs are guilty of this sometimes. Bombs that are clearly out of the park feature one man slowly galloping around the base paths and nine men doing nothing but watching on as the ball lands in the outfield bleachers—it's a type of inaction. Wouldn't a ball in play, such as a triple, be much more interesting to watch? Instead of nine men turning around and watching the baseball crash into the crowd for an automatic score, there are three men in the outfield scurrying for a loose ball with an impending heave to third base to prevent the runner, scrambling at full speed, from positioning himself 90 feet away from a scoring a run.

And that's not even the best part. Unlike the home run, the triple does not guarantee a score. After a home run, the bases are cleared, and we essentially begin anew for the next batter. But for the triple, there's no guarantee that anyone crossed home plate. The only thing for certain is that there's a man standing on third. So, from a viewer's perspective, instead of relaxing while the playing field resets for the next batter, you're glued to your television to find out whether the hitting team can do enough to bring the man on third home. In short, there's a lot more action going on in a triple than a home run. A home run gives an answer: someone scored. A triple creates drama and mystery: will someone score?

Considering casual fandom is becoming increasingly uncommon in baseball (see the Gallup poll results from Chapter 1), perhaps a return to more action-based plays—diving fly-outs and frantic triples, for example—would help to reel back in a declining viewer base. This may be an impossible task considering the way baseball strategy has evolved over time, but it's worth attempting possible solutions. Maybe removing the shift—a strategy that infielders and

outfielders use to position themselves in the most likely spot for the ball to be hit according to the batter's hitting history—would create more opportunities for eye-popping diving grabs. (MLB is exploring shift limitations at the minor-league level, which we will examine further in Chapter 6.) Maybe requiring every stadium to move back the outfield wall would create more opportunities for "active" triples and fewer opportunities for "inactive" home runs. Of course, these proposed solutions would receive severe backlash from teams and fans alike, so maybe they're worth keeping in the back of the mind if all else fails.

There may not be a clear answer for creating more "action-based" plays, but more research needs to be conducted anyway. Perhaps a baseball analytics organization such as SABR—or maybe even MLB itself—should undertake a deeper investigation regarding the trend between declining viewership and increasing inaction. It would even be worth conducting a series of polls with baseball fans regarding their viewership habits and the number of "active" plays that occur to find out whether or not there is correlation. There's a lot of uncertainty to unpack, but it is certain that this is a complex part of an overarching problem that requires more attention.

Chapter 4

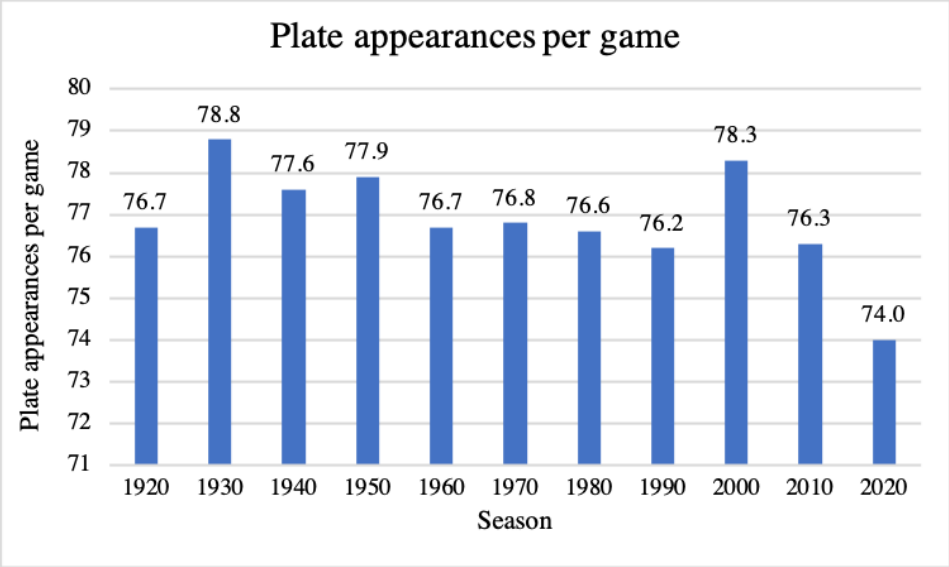
What's Not Causing the Pace of Play Slowdown

Before we tackle what *is* causing the pace of play slowdown across Major League Baseball according to the data, we should start by debunking what *isn't*. Two such factors are at play here: offensive production and advertising.

Let's begin with the first hypothesis. One might think that the creeping growth of the average baseball's game duration could be pinned on the production of more offense—that is, more runs and more plate appearances. Other pro sports organizations like the NFL have emphasized offense in recent years; the average points scored per team per game is up to 24.8 in 2020 from 19.0 in 1991 (Pro Football Reference). Who's to say that MLB isn't doing the same? And it would make sense; more total plate appearances and more runs scored equals more time spent at the plate.

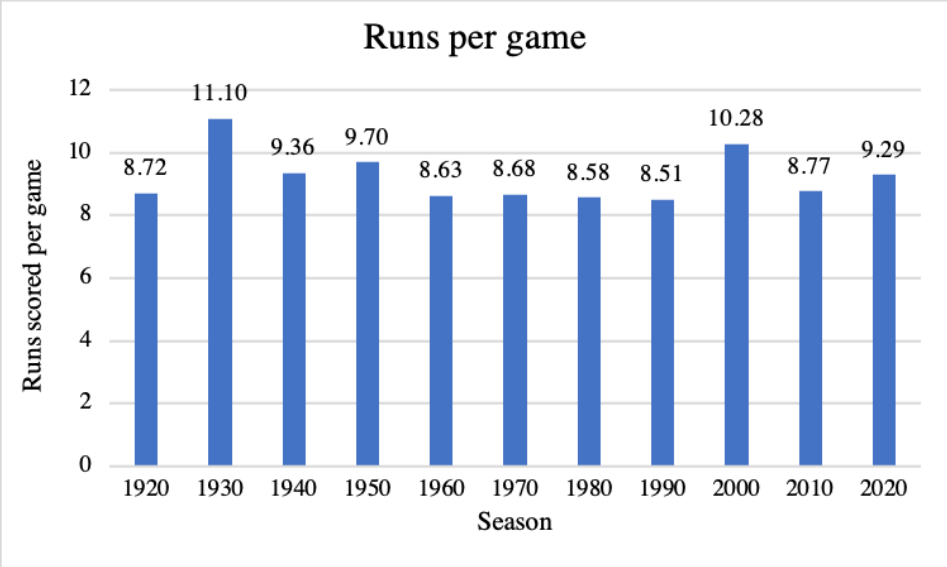
But the data refutes this hypothesis forcefully. Once again, Baseball Reference comes in handy with its year-to-year averages.

Figure 6. Average Total Plate Appearances Per Game, 1920-2020 (10-Year Intervals)



Data adapted from Baseball Reference

Figure 7. Average Total Runs Per Game, 1920-2020 (10-Year Intervals)



Data adapted from Baseball Reference

Whereas the duration of the average Major League Baseball game has clearly increased over time, the total number of plate appearances per game and runs per game has not. Plate appearances, if anything, have decreased, though only by 2.7 per game over the course of 100 years. Runs per game, meanwhile, has seemingly no correlation with the increasing game length, teetering between 8.51 and 11.10 over the past 100 years with no clear upward or downward trend at any moment.

To put it succinctly, the data shows that the primary offensive factors of total number of plate appearances and total number of runs per game have no correlation with the average baseball game's climb in duration. We can rule out offensive production as a possibility.

Well, what about advertising? Could the increase of mid-game commercialization throughout Major League Baseball be causing the uptick in the average length of a contest? The data for this argument is a little spottier than the clear-as-day numbers that the offense hypothesis

presents, but just like before, the figures seems to point to the idea that commercials are not to blame for baseball's lengthening.

Sure, the difference in advertising for the first radio broadcast back in 1921 and the 2019 World Series is night and day, and MLB's needs for advertising to keep the revenue coming clearly pushes game time in the upward direction. But is it the main cause? Probably not.

Let's explain by providing a two-game sample—for simplicity's sake. Grant Brisbee, an award-winning researcher for SABR and former writer for SB Nation, tackled baseball's pace of play problem in his 2017 article "Why Baseball Games Are So Damned Long." The sample size of this piece is miniscule—his research compares just two games head-to-head—so it's hard to draw any definitive answers from his findings (and Brisbee himself acknowledges this). But his example does provide an excellent stepping stone for further research on this granular level, in large part because the two games he analyzes—one from 1984 and one from 2014—are nearly identical. Both games saw the home team win 11-2. Both games had exactly one mid-inning pitching change. Both games saw exactly 27 total baserunners. Both games had approximately 270 total pitches (270 in 1984, 268 in 2014), and both games had approximately 75 total plate appearances (74 in 1984, 75 in 2014). From a numbers perspective, these games are almost inseparable. And yet, the 1984 game lasted a mere 2 hours, 31 minutes while the 2014 game lasted 3 hours, 6 minutes: a gap of 35 minutes.

Though Brisbee admits his research is not a "perfect, peer-reviewed experiment" (2017), he does take the time to thoroughly detail the major events that occur in each game by watching them in their entirety, meticulously picking out things like how long it took to throw a pitch and how long a commercial break lasted.

This second part is especially important, as Brisbee comes to this conclusion: commercials really didn't make up much of the 2014 game's 35 extra minutes. (We'll return to what Brisbee argues *is* causing the separation later on.) In total, Brisbee tallied 33 minutes, 13 seconds of advertising for the 1984 game and 42 minutes, 36 seconds of advertising for the 2014 game; that's a difference of just 9 minutes, 23 seconds—a far cry from the 35-minute gap between the two contests' total durations. Brisbee also notes that the mid-inning pitching change in 1984 took three minutes, but the broadcast network—Chicago's WGN—did not cut to commercial during this change, whereas the 2014 game did. So, if you were to count that 1984 pitching change as a commercial, the gap would shrink even further from 9 minutes, 23 seconds to just over 6 minutes (2017). Something else is the primary villain here—something that we'll get to later.

Despite the (limited) data showing that commercials don't add too much time to the average baseball game, MLB is testing options to cut back on the length of commercial breaks between innings in order to quicken the pace any way it can. Prior to the 2019 season, MLB and the Players Association agreed on a new list of rules for 2019 and 2020, including the reduction of commercial breaks between innings. Local broadcasts were cut down slightly—from 2 minutes, 5 seconds to 2 minutes—while national broadcasts were cut down significantly—from 2 minutes, 25 seconds to 2 minutes. The Office of the Commissioner also retained the right to reduce both of these numbers further to 1 minute, 55 seconds for the 2020 season (Pickard, 2019).

And even if advertising is a bigger timing issue than Brisbee believes, SB Nation writer and Internet Baseball Writers Association of America (IBWAA) member Andersen Pickard argues that this decision to reduce advertising space only hurts the league. While MLB has not

made the price of the average non-postseason commercial available in recent years, it is known that a World Series ad in 2018 cost $420,000. Knock this gaudy number down to five digits for the average commercial in a national regular-season broadcast, and the potential loss in revenue adds up quickly when you're cutting out 8 1/2 minutes of advertising time over the course of 2,430 regular season games (Pickard, 2017). That's a lot of money MLB is missing out on just to reduce the length of the average game by less than 10 minutes. It's easy to see why this decision may not be worth it.

Pickard also details an important aspect to this advertising reduction that one might not initially think of: concessions. Pickard notes how, in the average, non-pandemic season, fans already have a difficult time finding the space between innings to grab a bite to eat or a beer to drink. Knock that break time down even further and some people aren't even going to bother getting in line at all. A 5-second or 25-second reduction scaring off possible customers may not seem like a big deal, but Pickard estimates that Major League Baseball's total revenue earnings from concessions tally near $700 million (2017). That's a significant amount of money. Cause as few as 500 fans per game to think twice about buying a $5 hot dog because they don't have enough time to get back before the first pitch of the next inning, and over $6 million in total concessions are lost.

So, advertising is likely just a minor factor in baseball's pace of play problem, and efforts by MLB to combat this area could prove disastrous monetarily. What do we do? Focus on the actual problems causing the slowdown instead. We explore those in the next chapter…

Chapter 5

What Is Causing the Pace of Play Slowdown

So, if offense has no bearing on baseball's increasing length, and advertising appears to be contributing only a small piece of the puzzle, what are the major factors at play? It takes some deep research to find our answers, but it appears that advanced stat-keeping and changes in player behavior are to blame. And these factors go hand-in-hand as well.

The art of stat-keeping has long been a staple of baseball, as detailed by Syracuse University's "Sabermetrics: Baseball Analytics and the Science of Winning." On the most basic level, one can argue that stat-keeping began in 1845—decades before the creation of MLB—as the New York Morning News became the first publication to put a box score to print. Later in the 1800s, writer Henry Chadwick, often known as the "Father of Baseball," advanced the purpose of the box score by tabulating things like hits, home runs, and total bases. His work would be instrumental in the formulation of modern stats like batting average and slugging percentage.

The idea of using statistics to better your odds of victory really took off in the 1940s when Dodgers president Branch Rickey hired statistician Allan Roth, the first full-time stat keeper for an MLB clubhouse. Roth not only tracked established statistics but also expanded the stat-keeping purview by tabbing on-base percentage, batting average with runners in scoring position, batting performance against particular ball-strike counts, and more. In the late 1960s and early 1970s, Hall of Fame Orioles manager Earl Weaver implemented tactics of advanced stat-keeping, such as lineup and field substitutions depending on hitter-batter matchups, to better his odds of victory despite working with a low payroll (Foolish Baseball, 2020).

The formation of the Society for American Baseball Research (SABR) in 1971 was huge for advanced stat-keeping, as was the publication of the first edition of "Baseball Abstract," a journal detailing all sorts of statistical insights and one of the first to reach a mass audience, by baseball writer Bill James in 1977 (Syracuse University). James himself would coin the term "sabermetrics" in 1980 in honor of SABR, which James was a member of. Since then, the formation in 1981 of STATS Inc., a sports data technology company that provided teams with the tools to keep their own statistics, and the publication in 2003 of "Moneyball: The Art of Winning an Unfair Game," journalist Michael Lewis' account of Oakland Athletics general manager Billy Beane's use of sabermetrics to get the most out of a cheap lineup (much like Earl Weaver decades before), have served as landmark moments in the way fans, teams and MLB itself view the game of baseball on the analytical level.

The use of sabermetrics at the major league level is now widespread. A study by Professor Ramy Elitzur of the Rotman School of Management at the University of Toronto estimated that more than 75% of MLB teams were using sabermetrics as part of their game strategy by 2013—a significant increase from just four teams 11 years prior (2019). At the end of the day, baseball is all about winning, and if sabermetrics can predict which batter-hitter matchups or which defensive alignments or which player substitutions will better your odds of victory, then teams will make the necessary adjustments to improve those odds, challenging the "gut feel" that made up early baseball strategy. But is the implementation of sabermetrics into the fabric of baseball sacrificing the flow of the game at the pace of play level? It could be—though not at face value.

Think about it: Do infielders shifting five feet to the right or five feet to the left in accordance with the upcoming batter's spray chart really add that much time to a baseball game?

No. Same goes for a pinch runner coming in for the slow slugger who just singled, or the manager yanking his pitcher to put a power bat in the lineup for the upcoming inning. These shifts and substitutions take mere seconds to complete, and even when they occur multiple times in a game, they don't amount to much time.

The only one of these sabermetrics-influenced substitutions that takes up some real estate is the pitching change, especially the ones that occur mid-inning. Take a look at our infamous example of the 2019 World Series' Game 2. The full game with commercials included doesn't exist on YouTube, but if we assume the commercial break overlapping the Justin Verlander-Ryan Pressly switch lasted 2 minutes, 55 seconds—the average length of a World Series commercial break (Sieger, 2020)—then the time it took between Verlander delivering his final pitch and Pressly delivering his first was just shy of 4 minutes. That's a pretty decent chunk of time, and it's even more significant when you have multiple mid-inning pitching changes in the same inning, as we did in that 2019 World Series game (remember that Josh James relieved Ryan Pressly in the same inning that Pressly relieved Verlander). Of course, this particular example is less of a sabermetrically advantageous decision and more of a "the pitcher is struggling, let's get him out of there" decision, but the point remains that the pitching change occupies a good slice of time—maybe not so much on its own, but when paired with the slight increase in advertising space and multiple mid-inning pitching changes in the same game, it creates a lot of empty space in a baseball game's duration.

As for solutions (which we'll get more into in Chapter 6), any adjustments MLB makes here are unlikely to be detrimental to the league's financial prosperity. Unlike advertising, MLB cutting back on pitching-change time doesn't affect the league's wallet. MLB has already experimented with this, implementing the three-batter minimum for any starting or relief pitcher

starting with the 2020 season in order to limit the number of mound substitutions a team can make. We only have a season's worth of data to work with here, so there's more to be researched with the rule continuing into 2021.

That's about it for sabermetrics at face value—a minor influence but nowhere close to making up the majority of the lengthening of the average MLB game over time. But don't abandon this hypothesis just yet! Sabermetrics still play a crucial role in baseball's pace of play problem. We just need to dig a little deeper. And for that, we turn to the second half of the argument: changes in player behavior.

The data is limited—baseball's pace of play has only become a major topic of interest recently—but it's hard to imagine that anything other than simple behavioral shifts among the game's participants is the primary culprit for MLB's slowdown.

First, some definitions. What constitutes a "change in behavior?" To answer, we return to Grant Brisbee's "Why Baseball Games Are So Damned Long." (It's this same research in which we find some pretty remarkable evidence that these behavioral changes are at the root of the problem.) Essentially, a "change in behavior" is a shift that occurs over time in the regular mannerisms and actions of an individual ballplayer. And these behavioral changes are often, as Brisbee eloquently puts it: "modern players doing *absolutely nothing* of note. The batter taking an extra breath before he steps back in. The pitcher holding the ball for an extra beat" (2017). And Brisbee's two-game sample is chock-full of these nothings.

Through meticulous analysis, Brisbee counts up each pitch that "[results] in a ball, called strike, or swinging strike, but didn't result in the end of an at-bat or the advancement of a runner" (2017). Brisbee calls these kinds of pitches "inaction pitches" (Where have we seen that word "inaction" before?). Further clarification for visualization purposes: inaction pitches are the ones

in which the batter did not make contact, and the pitcher received the ball back from the catcher in preparation of the next pitch. Incredibly, there were 146 inaction pitches in the 1984 game and 144 in the 2014 game (how similar can two baseball games be?). Here's the kicker, though: the time elapsed between pitch to pitch varied significantly. According to Brisbee's calculations, 32 minutes, 47 seconds were spent on inaction pitches in the 1984 contest. And in 2014? For nearly the exact same number of inaction pitches? 57 minutes, 41 seconds. That's a difference of 24 minutes, 54 seconds—over 70% of the 2014 game's 35 extra minutes. There's your answer. That's why baseball games are longer these days than they were before.

Well, maybe we shouldn't be too hasty and declare this the be-all, end-all answer for the pace of play problem. Again, this was a TWO-game sample among the over 200,000 matchups that have taken place in MLB history. But that number sure is intriguing, isn't it? 24 minutes and 54 seconds, spent on *nothing*.

If you're a little suspicious of this conclusion because of small sample size, Sports Illustrated writer Tom Verducci provides some more concrete data with his article "MLB Can't Wait Any Longer to Fix Its Pace of Play Problem." Verducci notes that, since 2011, players take 2.6 more seconds between pitches on average, ultimately making up 13 minutes, 17 seconds of dead space in a full game. As a keynote speaker at Penn State's 2021 Sports Business Conference, Verducci clarified the importance of this data, adding that baseball is facing an "existential crisis" because it is ill-suited to the times, in that the American eye craves movement now more than ever—the average attention span is just 19 seconds. Pitches are less frequent than that, occurring every 23 seconds on average.

In terms of the aforementioned "lack of action," batters are only putting the ball in play on 15.8% of pitches—down from 18.3% in 2011—meaning there are approximately 259 pitches

per game without the ball in play. That number was just 213 in 1988. It's also worth noting that, 10 years ago, on average, it took 3 minutes, 18 seconds for a ball to be put in play. That's up to 4 minutes in 2020 (2021). Each of these numbers is a significant finding regarding pace of play, and they add a good bit of credibility to the small scale of Brisbee's main argument.

It's unfortunate that the data from the kind of cross-comparative study that Brisbee performed is so limited because that 24 minutes, 54 seconds is an eye-popping number. Sure, it might be difficult to compare modern games to those from the 1920s and 1930s since existing game film is limited (and existing commercial break film is probably even more limited). But it just seems like an oil well begging to be dug up.

So, what do other experts think of this hypothesis? Rob Mains tends to agree. Mains, an analyst and author for Baseball Prospectus, says this:

> No question, and "attitude change" is a good way to describe it; it is advantageous for pitchers to wait more between pitches, and batters do the same thing. Batters aren't supposed to step out unless they call time on any pitch [that] they don't swing at. And they do it on every pitch. If you're standing at the plate and you take a ball, why do you need to adjust your gloves? They're not doing it just because they need to adjust their gloves. They're doing it because they really want to think about—given the game situation, given the pitcher, given what he's thrown so far—"what am I likely to see on the next pitch? Where is the location going to be?"

And this might be where sabermetrics comes in. Batters and pitchers know how they're expected to fare in certain matchups. Perhaps the pitcher has delivered heat on three straight pitches, and he knows the batter is prepared for it. The data tells him that a changeup here might be enough for the strikeout, so he takes an extra couple seconds to consider his catcher's signals before releasing. Or maybe the batter sees the shift is on since 90% of his hits go into right field, so he calls timeout and steps out of the box to take an extra second to think about how he's going to send what the pitcher gives him into left. These may be very specific examples, but they represent just how ingrained this kind of in-depth statistical analysis is in the modern game. And

why not? It betters the odds of victory. In a way, baseball players are playing the game smarter by taking time to consider the advantages and disadvantages of taking a pitch or swinging based on what the data says—a stark change from just "swinging at what you feel is right" before statistics became a pivotal aspect of play. And maybe to play the game smarter, you just need a little more time to think, or a little more time to take a breath and relax.

The argument does not end here, though. Sabermetrics may be one explanation for these shifts in player behavior toward a more methodical pace, but they're not the only one. After all, not every batter is stepping up to the plate, mentally picturing a spreadsheet of his hitting percentage on fastballs low in the zone (in fact, probably very few are). What if money were involved? Well, this is Major League Baseball. Money is always involved.

Sports Illustrated baseball editor Matt Martell also supports of the idea that behavioral changes are the primary cause of baseball's deceleration over time, and he argues that money is the at the root.

> Player attitudes are somewhat tied together with what they're paid to do. You hear a lot of the home-run hitters say, "Well, I'm not paid to hit singles." Guys that could be singles hitters [or] could be home-run hitters say, "I'm incentivized to sacrifice 10 points of my batting average if I can hit 20 more home runs, even if it means striking out 30 to 40 more times in the year." Now that the players are incentivized financially to do this, their attitudes change for how they want to play the game because that's what gets them paid.

Martell also notes that timing—when the player gets paid—is crucial.

> If players have to wait six years or so into their careers to get paid, they're going to try to do whatever they can in those years before hitting free agency to prove their worth. And if the players that hit the most home runs or the pitchers that have the highest strikeouts per nine [innings] are the ones that are getting paid, that's what those players are going to do.

YouTuber and baseball expert Foolish Baseball provides real evidence to this argument with famed singles hitter and Seattle Mariners legend Ichiro Suzuki. In his video "Ichiro Suzuki: Japan's Secret Slugger?" Foolish Baseball hypothesizes that Ichiro—the single-season hits

record holder, a .311 career hitter, and the owner of just 117 home runs in his MLB career—could have hit as many as 520 dingers if he had been paid to play the game differently (2019). Foolish Baseball provides the following Ichiro quote after the 2007 All-Star Game: "If I'm allowed to hit .220, I could probably hit 40 [home runs a season], but nobody wants that."

Why would nobody want Ichiro to hit 40 home runs in a season? Because the data (visualized in Foolish Baseball's video essay) suggests that Ichiro's hitting-for-average style actually helped the Mariners' odds of victory more than power slugging would have. Sure, owners and general managers want their players to be flashy and hit "exciting" home runs to draw in viewers, but they're also smart enough to realize what's feasible for the most important viewership incentive: winning.

And, once again, this is where sabermetrics plays a role. Martell agrees: "[Players are] paid to hit home runs because the analytics have showed that trying for the home run gives teams a better chance of winning over a large sample of games than playing for a couple runs from singles or doubles or stolen bases."

So, we have our answer. Both analytics and money are shifting player behavior toward inaction-based plays, such as swinging for home runs at the risk of striking out, or pitching to strikeout instead of pitching for contact, slowing the game down and making it more "boring" in the process.

And that conclusion is actually great news for MLB. Inaction is both the most likely cause of baseball's pace of play slowdown as well as one of the possible reasons for the league's declining viewership. You can kill two birds with one stone if you find a solution. Of course, finding a solution that pleases everybody is not an easy task. In fact, it may be downright impossible. But let's hypothesize some anyway.

Chapter 6

Proposed Solutions

So, how do we fix baseball's pace of play problem and attract more viewers? The solution may seem as simple as "speed the game up" and "make plays more exciting," but that's easier said than done. Baseball strategy has evolved so much that huge, overarching adjustments like cutting out sabermetrics entirely or using pay to incentivize players to return to behavior of decades past are not feasible in the slightest. Unfortunately, the best course of action is for MLB to implement small-scale solutions in order to chip away at this problem little by little.

Let's start with what MLB has already implemented. The three-batter minimum is a step in the right direction. As mentioned before, the pitching change is the one mid-game, sabermetrically influenced decision that takes up a significant amount of time on its own. By limiting how many times a team can make a pitching change, MLB can eliminate a lot of negative space that lengthens a game. Of course, this three-batter minimum interferes directly with the essential action of making the best possible moves in order to better your chances of victory, and some baseball diehards have made clear their discontent with this rule change. But as time passes, fans are less likely to object to it and are more likely to accept it as just another ordinary rule of the game.

There's also the argument that the three-batter minimum doesn't actually help to cut down game duration, as struggling pitchers who are required to face at least three batters might pitch them aboard, lengthening the inning until relief is allowed to come in. But is this kind of lengthening really a bad thing? No. We've established that lengthening via inaction is what's

unhealthy for baseball. A pitcher loading the bases before he is allowed to take a seat on the bench is definitely a kind of action, and a suspenseful one at that. Will the next pitcher get out of this jam? Or will the dam break open offensively? You'd be stuck to your TV set just thinking about it. Either way you slice it, the three-batter minimum is a good thing for viewership.

2017's new intentional walk rule is also a good move. Instead of the pitcher slowly lobbing four pitches back and forth with the catcher in order to avoid facing the next batter, the team's manager can just point the batter to first base and be done with it. It's good for the game—fans aren't wasting time watching two adults play catch for 40 seconds—and it's good for the players—the pitcher isn't wearing out his arm on meaningless pitches. It's hard to find any downside to this rule at all.

Shortened replay reviews are good, too. The one review that took place in the 2014 game from Brisbee's study lasted nearly four minutes, but as of 2017, that's a thing of the past; reviews can last two minutes maximum before the umpires have to make a decision. It's important to have these reviews so we can quickly fix wrong calls that were made in the heat of the moment. But it's also important to keep these reviews short so not to have players and fans doing and watching nothing for an extended period of time.

These are all worthwhile adjustments that MLB has made to help quicken the pace of its games, but as the data has shown, they're not enough on their own. It's time to start exploring some other possible solutions that haven't been tested on the major league level. The good news is that MLB is ready to try some of these in the minors.

The most often talked-about suggestion is the pitch clock—a timer behind home plate that limits how long a pitcher can take before he has to deliver the next pitch. As Tom Verducci mentions, these clocks could also enforce limits on the space between innings and during

pitching changes, potentially eliminating a lot of down time taken up by relief pitchers throwing practice pitches upon taking the mound (2021). This kind of pitch clock variant will be used in the Low-A West league when its season begins in May this year. There's talk that the clock will be set at 17 seconds, and that batters will not be granted a timeout after seven seconds have passed—except in the case of emergencies—though this concept has yet to be set in stone. If it does end up being the case, it could be massive. If all 144 inaction pitches in Brisbee's 2014 game were limited to 17 seconds max, they'd make up 40 minutes, 48 seconds of game time at the very most—an enormous 17-minute reduction from the 57 minutes, 41 seconds of empty space in the 2014 sample. And cutting down on batter timeouts would be big too—a lot less pointless glove adjusting.

Brisbee is in favor of the pitch clock, stating, "I haven't heard or read a complaint about them from anyone who regularly attends minor league games. They're in the background. You get used to them" (2017). The biggest pushback, of course, comes from the players, especially pitchers. Nationals ace Max Scherzer is one such opponent, telling ESPN, "As players, it just shouldn't be in the game. Having a pitch clock, if you have ball-strike implications, that's messing with the fabric of the game. There's no clock in baseball, and there's no clock in baseball for a reason" (2019).

It's no surprise that owners have tried to negotiate a pitch clock in the past with the players denying each time. According to Verducci, MLB commissioner Rob Manfred actually had the power to institute a pitch clock himself in 2019 but chose not to in order to maintain the relationship between the league and the Players Association—a relationship that is already on shaky ground (2021).

The sheer pushback from the MLBPA may prevent the pitch clock from ever becoming a reality at the major-league level, but it's an idea worth continuing to experiment with in the minors, and it's something that MLB owners should continue to push for. The potential benefit is just too good to let slip away.

You know what's an exciting play? The stolen base. You know what doesn't happen all that much anymore? The stolen base. ESPN's Buster Olney details how stolen base numbers have been steadily declining since the mid-1980s, reaching 3,585 total in 1987 before falling to 3,308 in 1997, then to 2,918 in 2007, and finally 2,527 in 2017 (2018). Clearly this is another change in player behavior in direct correlation with emphasis on what's going on at home plate instead of what's going on in the field. The analytics have shown teams that players should only bother trying to steal if they have an 80% success rate or higher (Olney, 2018). That's a pretty sizable clip, so it's understandable that teams might shy away from this strategy. What do we do about this? Incentivize stealing, of course. And what's a better way to go about that than discouraging one of the most time-consuming inaction plays in all of baseball: the pickoff attempt?

As Olney writes, there used to be a bit of a stigma against pickoff attempts; if a pitcher tried too many, he'd feel guilty that he was holding up the progress of the game (and the boos from the crowd would provide the shame). But pitchers nowadays aren't as concerned with the fan reaction, often tossing the ball to the first baseman or stepping off the rubber multiple times in a single at-bat to goad the runner into holding at first. While the goal the of pickoff attempt is usually just to keep the runner in place rather than recording an out on the base paths, fans don't see it this way, and since the chances of a successful out via the pickoff are exceedingly rare, pickoff attempts become extremely boring extremely quickly. This presents another "kill-two-

birds-with-one-stone" situation for MLB: you can help make the game more interesting and bring down the total watch time if you encourage base stealing and dissuade pickoff attempts.

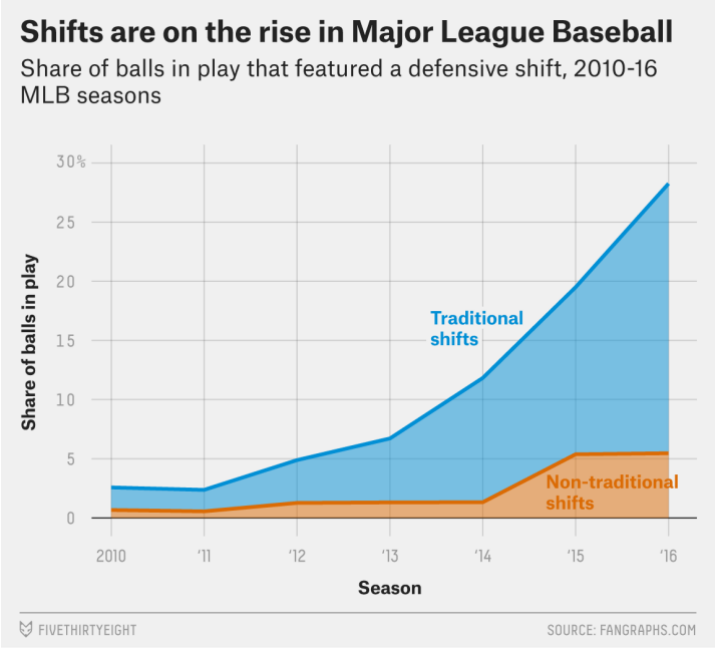
Once again, MLB is ahead of the curve. When the 2021 Triple-A season begins in May, bases will be increased from 15 square inches in size to 18, meaning it'll be easier to get a hand aboard before the fielder applies the tag. Pitchers in High-A, meanwhile, will have to step off the rubber before attempting a pickoff throw (giving potential base stealers an extra half-second to jump), while pitchers in Low-A will be allowed just two pickoff attempts per at-bat with a balk being called if the pitcher attempts a third and fails to get the runner out (Verducci, 2021). Each of these rule changes incentivizes the "exciting" stolen base attempt and dissuade the "boring" pickoff attempt. Considering the implementation of these rules at the major-league level wouldn't shift the foundation of the modern game as much as a pitch clock would, it may be worth proposing to the Players Association—after we see the data from the minors, of course.

One possible solution that wouldn't help with game length but could make the on-field action more exciting is limiting the shift. As stated before, players moving from their regular location in accordance with the upcoming batter's most likely hitting spots doesn't take much time at all, and if you limit the shift, you probably extend the total game time, as more balls are likely to make their way past the infield for a base hit. But balls in play are a good thing, remember? They make the game more fun to watch, and that's half the battle.

In terms of minor league experimentation, Double-A is this year's recipient of new shift rules, which state that all infielders must have their feet planted within the infield dirt for the delivery of the next pitch—essentially, infielders are prohibited from shifting backward into the outfield. MLB may also potentially enforce a requirement of two infielders on either side of the second base bag, but that's still up in the air at this point (Verducci, 2021).

As for viability at the major league level, restrictions on the shift may be too difficult to pass. Though the shift is usually thought of as a modern technique, it's been around for ages. Cleveland Indians' player-manager Lou Boudreau utilized a prototypical version of it in the mid-1940s to keep right-pulling Red Sox star Ted Williams at bay (Paine, 2016), though the strategy largely went dormant for the next 60 years until the release of "Moneyball" and the sabermetrics explosion showed how effective it could be. From 2010 to 2016, the use of the shift skyrocketed, appearing in less than 5% of all balls in play in 2010 before reaching 28% for the same circumstances in 2016 (Paine, 2016).

Figure 8. The Rise of the Shift in Major League Baseball



Source: FiveThirtyEight, data adapted from FanGraphs

Essentially, the shift has become a staple of modern defensive strategy. Any attempts by MLB to ax it now could see major pushback from teams and fans alike.

Another proposed solution in some circles is that of the automatic strike zone, which would replace the umpire behind home plate by standardizing the parameters of the strike zone.

A variation of this is coming to the Low-A Southeast leagues in 2021 (Verducci, 2021). There's good intention behind this strategy—limiting the subjectivity of ball-strike calls—but would it really help baseball's pace of play? Probably not.

For one thing, the subjectivity of the current strike zone can create some juicy drama if the umpire makes a wrong or borderline call. Who doesn't love seeing a player or a manager get ejected for getting in the ump's face and arguing balls and strikes every once in a while? Hey, that's a type of "action," even if it's occurring between the pitches. From a more analytical perspective, the implementation of the automatic strike zone could cause batter behavior to veer even more toward inaction. Batters know that the subjectivity of the umpire's strike zone could result in a borderline call going the pitcher's way, so they're more likely to swing away (and maybe create some action with a ball in play). With the automatic strike zone defining strict boundaries, players can learn what will and will not be called a strike, so they'd be likely to take more pitches that they know will be called balls. That means longer plate appearances with less contact: just the opposite of what MLB needs. We'll have to wait and see what the data from the minors says regarding this new feature, but common sense seems to dictate that an automatic strike zone isn't the way to go.

Chapter 7

Conclusions

To summarize: Major League Baseball's dramatic increase in the length of the average game possesses strong correlation with declining viewership levels over time. This increase goes hand-in-hand with the rise of inaction-based plays, such as home runs and strikeouts, and the reason we're most likely seeing this rise, according to what the data finds, is because of player behavioral changes brought on by both sabermetrics suggesting what's most likely to result in victory and monetary incentive. There are plenty of untapped potential solutions for helping to fix baseball's pace of play problem, including the implementation of a pitch clock or limiting the shift, but many of them seem near impossible to install considering the way baseball strategy has developed as well as the poor state of relations between MLB and the Players Association.

So, what can MLB do to fix its pace of play problem? Go back to the start: fix its relationship with the players. As we've uncovered in this thesis, pace of play is a pressing issue that MLB needs to address. But addressing it with a proper solution doesn't seem feasible until the league is on better grounds with the individuals that deliver the product out on the diamond.

Major League Baseball hasn't seen a major lockout or strike since 1994's shortened season, but tensions could reach a boiling point if MLB tries to enforce changes on the game that are unpopular among the players. "Distrust is a very powerful force," writes Tom Verducci in "Distrust Is Marring the Progress Between the MLBPA and Owners." Verducci notes how, at one point in 2020, the players did not accept the team owners' 72-game proposal at 80% prorated pay (tallying about $1.5 billion in earnings), instead favoring commissioner Rob Manfred's

proposed 48-game season at 100% prorated pay, despite Manfred's proposal equaling $1.2 billion—about $300 million less. According to Verducci, that's a virtual pay cut of about 20% for every player. Why would the players do this? Because they don't trust the owners. They turned a discussion about returning to play in a pandemic-shortened season into an argument about the discrepancy between player and owner salaries because of an inherent sense of distrust (2020). That's why it's going to be so difficult for MLB to implement any pace of play changes that the MLBPA finds unfavorable; the two sides just don't trust each other.

Rebuilding that trust is of the utmost importance. If MLB wants its players to make concessions regarding new rules that change how the players behave in order to reduce game length and promote more active plays, it's going to have to make some concessions, too—most likely in terms of pay, benefits, advertising deals, season length, and other factors. SB Nation and Off the Bench Baseball writer Daniel R. Epstein estimates that the worth of the league's assets, revenue, and expenses totaled just under $30 billion in 2019; that number increases to about $81 billion if you add in the costs for each of the 30 teams (2019). Despite the fact that baseball is losing relevance in the sports landscape, MLB clearly still has deep enough pockets to show its players a little more love. And while they're at, they should help out the minor leaguers, too. Epstein notes how players in the lowest levels of the minors make just $1,100 a month for a three-month season (2019). Bump that number up to five digits and MLB can improve its relations with future generations of players for a long time to come.

Certainly, MLB and the MLBPA will have a lot to discuss before the collective bargaining agreement renews in 2022, as Matt Martell notes. Any failures by MLB to show support of its players could have disastrous consequences going forward.

So, we know that MLB has to patch relations with the players before it can give a full-hearted attempt at fixing pace of play. As for the research perspective—what's next? A lot, really. Take a page from Grant Brisbee and cross-compare statistically similar games from different eras to find what's causing time discrepancies. Poll baseball viewers to find out what kind of plays they want to see. Ask non-baseball viewers what they would want from baseball to earn their spectatorship. Track the play-by-play data and duration data in the minor leagues this year to see how well proposed solutions are working at tackling the problem. Use sabermetrics advantageously to think critically about more untested solutions. It's a whole world waiting to be explored. The pace of play discussion has only just begun.

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ACADEMIC VITA

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EDUCATION

Donald P. Bellisario College of Communications at The Pennsylvania State University ***May 2021***

- Major: Broadcast Journalism
- Minors: Spanish, Political Science
- Schreyer Honors College (7x Dean's List)

COMMUNICATIONS EXPERIENCE

CommRadio (Penn State) ***Aug. 2017 – Present***

- Broadcast play-by-play and color for over 50 CommRadio productions of Penn State sports, including football, basketball, baseball, hockey, lacrosse and volleyball
- Greatly enhanced CommRadio's coverage of Penn State football in 2020 as one of four elite insiders
- Co-host weekly NFL talk show "4th & Long"
- Write weekly analytical articles about NFL football and college basketball
- Provide additional written coverage via beat reports of numerous Penn State sports
- Edit and publish over 1000 written articles from fellow CommRadio contributors, offer feedback to improve their grammatical and stylistic skills
- Produce, edit and operate over 50 CommRadio productions

Centre County Report (Penn State) ***Aug. 2020 – Dec. 2020***

- Anchored sports for weekly student-operated broadcasts in Centre County, PA
- Reported and edited numerous news and sports packages for Centre County Report broadcasts
- Served as head producer for multiple Centre County Report broadcasts

Washington Wild Things (Internship) ***May 2019 – Aug. 2019***

- Produced over 30 internet broadcasts for Frontier League baseball team Washington Wild Things
- Transformed broadcasts with detailed live graphics, delivered lineups and box scores to team clubhouses, compiled game notes and player statistics, kept score, etc.

Bauertology ***Jan. 2018 – Present***

- Created "Bauertology," personal take on NCAA Tournament analysis
- Analyze college basketball in-depth via bracketology, bubble watch and top 25 rankings, showcased work on personal blog, Twitter and CommRadio

ACCOMPLISHMENTS

Boy Scouts of America

- Achieved Eagle Scout: Aug. 30, 2017
- Achieved Order of the Arrow (Boy Scouts honor society): May 5, 2018

OTHER EXPERIENCE

Donald P. Bellisario College of Communications Work-Study Program ***Oct. 2017 – Present***

- Work as liaison for recruiters and career fairs, assist fellow students with securing internships