How Did the Pitch Clock Impact the 2023 Major League Baseball Season?

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ABSTARCT

Major League Baseball implemented a pitch clock in 2023 to speed up the game. The authors explore the impact of the pitch clock on average game time, home attendance, and several common team pitching metrics [earned run average (ERA) and walks plus hits per inning pitched (WHIP)]. For the 83 starting pitchers who pitched for the same ball club in 2022 and 2023, the authors use Bill James's Game Score to assess their performance at home between the two seasons. Games were about 13 percent shorter, attendance increased for most clubs, and overall team pitching suffered (team ERAs and WHIPs, on average, increased). While average Game Score decreased for close to 60 percent of starting pitchers from 2022 to 2023, the drop-off was statistically significant in only six cases.

Introduction

A pitch clock designed to speed up the game was one of several rule changes implemented by Major League Baseball (MLB) in 2023. Other changes aimed at revitalizing the game to encourage more base stealing and increase batting averages were larger base pads and limits on defensive shifts. The larger bases (excluding home plate) are now 18 inches square, up from 15 inches square. The team on defense must now have a minimum of four players on the infield and at least two infielders on either side of second base.

The most notable and widely discussed rule change in the MLB, however, was the arrival of a pitch clock. Each stadium would have two pitch clocks located behind the umpire on either side of home plate and at least two more pitch clocks located in the outfield that would be easily visible to the home plate umpire and batters. For 2023, pitchers had 15 seconds to deliver a pitch with bases empty and 20 seconds with runners on base. Failure to do so resulted in an automatic ball. Hitters who were not ready to receive a pitch with eight seconds remaining on the pitch clock were charged with an automatic strike. The pitch timer rule also limited the number of throws to first base to hold a runner.

At the end of the 2023 MLB season, fans recognized that the rule changes had shortened games dramatically and that declining attendance since 2007 had rebounded. Adler [1] and Adgate [2], among others, noted that game times were down and attendance was up.

Leibovich [3] quoted ESPN's Jeff Passan that the MLB's pitch clock was nothing short of "baseball liposuction." To date, discussion has been largely limited to the pitch clock's impact on the entire league. This paper examines the impact of the pitch clock on individual teams and individual starting pitchers.

The Data

The authors examine for each of the 30 MLB teams in 2022 (one season before the pitch clock) and 2023 (i) average time of a home game, (ii) average home game attendance,

(iii) average home game ERA (the number of earned runs pitchers allow per nine innings) and (iv) average home game WHIP (walks plus hits per inning pitched).

To gauge the impact of the pitch clock experience on individual starting pitchers, the authors collected data on Bill James's "Game Score" (hereafter abbreviated GSc) which measures a pitcher's performance in any given game started. Pitchers start with a GSc of 50 points. One point is added for each out recorded or for each strikeout; two points are added for each inning completed after the 4th. One point is subtracted for each walk; two points are subtracted for each hit allowed or each unearned run allowed; and four points are subtracted for each earned run allowed. For example, a starting pitcher who goes six innings and gives up three earned runs would have a GSc of 42 [= 50 + 2 + 2 – (3×4)]. The pitchers included in our sample are starting pitchers with at least two games started at home for the same ballclub in 2022 and 2023. However, the authors focus only on home games rather than assume that the results will be the same between home and away. Although each stadium has four pitch clocks, some fans claimed that time protocol varies by ballpark [4]. Starters typically pitch more innings in fewer games compared to relievers who pitch fewer innings in more games.

All data – times at 81 home games, home game attendance figures, team ERAs and WHIPs at exclusively home games, and year-by-year game logs for home game GSc values – were obtained from Baseball-Reference.com [5].

Methodology

A comparison of the length of home games is done using the same 30 teams in the 2022 and 2023 seasons. For these paired or matched samples one can calculate a 95% confidence interval for the average percentage decrease in game time.

A comparison of attendance at 81 home games in 2022 and 81 home games in 2023 is done using a *t*-test on independent samples. That is, the 81 visiting teams in one season are sequentially different from the 81 visiting teams the following season; they cannot be paired.

For each team, we therefore report a *p*-value for a two-tailed test on the difference between the two means.

The two seasons of data on team ERA and team WHIP are paired or matched samples for which one can calculate a 95% confidence interval. Pairing the data by team achieves a match that keeps many of the extraneous variables constant. In using the same 30 teams at exclusively home games, we keep the ballpark (and hence the distances from the outfield fence to home plate), the location of pitch clocks, the direction the ballpark faces relative to the batter's eyes, and many other factors exactly the same in both samples. Although the weather in Detroit may vary from April 2022 to April 2023, April weather in Detroit is nonetheless probably very different from April weather in Atlanta. Some ballparks have retractable roofs or even domes, so weather may not be a factor for teams like Tampa Bay (with a non-retractable domed stadium) or Toronto (with a retractable roof). We therefore have more leverage on assessing the impact of pitch clocks by focusing on only home games rather than assume that the results will be the same between home games and road games.

The comparisons involving Bill James' Game Score (GSc) for starting pitchers who pitched for the same ballclub in 2022 and 2023 is done using independent samples. The number of starts at home games varies from season to season. Moreover, a pitcher's first starting appearance one year is likely against a different team than his first start in another year. For all starting pitchers who meet our criteria (pitched for the same ballclub in 2022 and 2023, recorded at least two "Game Scores" in both seasons, and were starting pitchers), we ran a series of two-tailed *t*-tests, using a 0.05 alpha level of significance. A pitcher who has his first experience with a pitch clock in April and struggles has no choice but to adapt or he will lose his job. For the vast majority of starting pitchers in our sample, the difference between their two season mean "Game Scores" may be negligible. In some cases, however, pitchers who were slow to adapt to a timer may observe significantly lower average "Game Scores" in 2023 than they did the previous season.

The Results

Table 1. Average Length of Home Games in Major League Baseball, 2022 and 2023

Team	*2022 (minutes)*	*2023 (minutes)*	*Percentage decrease*
Arizona Diamondbacks	185.56	164.41	11.40
Atlanta Braves	187.54	162.06	13.59
Baltimore Orioles	191.12	163.89	14.25
Boston Red Sox	190.78	167.91	11.99
Chicago Cubs	183.22	161.58	11.81
Chicago White Sox	186.36	162.79	12.65
Cincinnati Reds	189.46	165.02	12.90
Cleveland Guardians	181.17	156.47	13.63
Colorado Rockies	186.35	165.00	11.46
Detroit Tigers	180.30	159.68	11.43
Houston Astros	185.09	165.12	10.79
Kansas City Royals	182.93	160.95	12.02
Los Angeles Angels	187.67	164.05	12.59
Los Angeles Dodgers	185.98	158.91	14.56
Miami Marlins	187.69	158.32	15.65
Milwaukee Brewers	191.46	161.44	15.68
Minnesota Twins	190.86	161.32	15.48
New York Mets	188.85	165.69	12.26
New York Yankees	192.11	161.93	15.71
Oakland Athletics	181.29	165.31	8.81
Philadelphia Phillies	193.91	165.49	14.66
Pittsburgh Pirates	185.31	159.99	13.66
San Diego Padres	190.52	164.79	13.51
San Francisco Giants	187.33	152.73	18.47
Seattle Mariners	184.28	161.27	12.49
St. Louis Cardinals	185.65	164.30	11.50
Tampa Bay Rays	180.09	156.57	13.06
Texas Rangers	187.20	160.88	14.06
Toronto Blue Jays	181.88	165.59	8.96
Washington Nationals	187.15	161.14	13.90

Source: Baseball-Reference.com at https://www.baseball-reference.com/

For all 30 teams, the pitch clock reduced the average time of home games by about 24 minutes (a 13.1 percent decrease), from 186.6 minutes in 2022 to 162.2 minutes in 2023. The San Francisco Giants experienced the largest decrease, close to 35 minutes; the Oakland Athletics experienced the smallest decrease, less than 16 minutes. The 95

percent confidence interval on the changes (in the final column of Table 1) extended from a 12.3 percent decrease to a 13.9 percent decrease.

Table 2. Average Home Attendance in Major League Baseball, 2022 and 2023

Team	*2022 Attendance*	*2023 Attendance*	*Percentage change*	*p-value on difference*
Arizona Diamondbacks*	19817	24212	**22.18**	**0.0003**
Atlanta Braves	38641	39401	**1.97**	0.1883
Baltimore Orioles	17543	23911	**36.30**	**< 0.0001**
Boston Red Sox	32409	32989	**1.79**	0.2310
Chicago Cubs	32306	34261	**6.05**	**0.0025**
Chicago White Sox	24807	21405	**-13.71**	**0.0012**
Cincinnati Reds	17447	25164	**44.23**	**< 0.0001**
Cleveland Guardians	17051	23514	**37.90**	**< 0.0001**
Colorado Rockies	32468	32197	**-0.83**	0.8375
Detroit Tigers	19694	20946	**6.36**	0.2489
Houston Astros	33198	37683	**13.51**	**< 0.0001**
Kansas City Royals	15971	16136	**1.03**	0.8412
Los Angeles Angels	30339	32600	**7.45**	0.0579
Los Angeles Dodgers	47672	47371	**-0.63**	0.6792
Miami Marlins	11204	14356	**28.13**	**0.0005**
Milwaukee Brewers	30280	31498	**4.02**	0.2143
Minnesota Twins	22514	24372	**8.25**	**0.0400**
New York Mets	33308	32994	**-0.94**	0.7496
New York Yankees	40208	40863	**1.63**	0.4176
Oakland Athletics	9973	10276	**3.04**	0.7828
Philadelphia Phillies	28459	38158	**34.08**	**< 0.0001**
Pittsburgh Pirates	15524	20131	**29.68**	**0.0003**
San Diego Padres	36882	40390	**9.51**	**< 0.0001**
San Francisco Giants	30650	30866	**0.70**	0.8202
Seattle Mariners	28591	33215	**16.17**	**0.0041**
St. Louis Cardinals	40994	40013	**-2.39**	0.1877
Tampa Bay Rays	13927	17781	**27.67**	**< 0.0001**
Texas Rangers	24832	31272	**25.93**	**< 0.0001**
Toronto Blue Jays	32763	37307	**13.87**	**0.0001**
Washington Nationals	25017	23035	**-7.92**	0.0622

Source: Baseball-Reference.com at https://www.baseball-reference.com/

*Names in **blue** are teams whose standing in their division increased from 2022 to 2023.

Each MLB team plays 162 games during the regular season, 81 each at home and away. Table 2 shows for each ballclub the average attendance at home in 2022 and 2023. Apart from reduced game times, attendance for all but six ballclubs was up. For 15 ballclubs, the percentage increase was statistically significant at better than the 0.05

level. For only the Chicago White Sox (whose win percentage fell from 0.500 in 2022 to 0.377 in 2023) was the percentage decrease in attendance (almost 14 percent) discernible from zero (p = 0.0012). Among the dozen teams whose standing in their division improved from 2022 to 2023, their increase in home attendance was way up, 22.7 percent (p = 0.0001). Among the 18 teams whose standing in their division did not improve, home attendance still increased, up 4.6 percent (p = 0.0004). How much of the increase in attendance was due to baseball's new rule changes, let alone the pitch clock, is difficult to say. But, fans seemed to like the faster pace of play.

Table 3. Earned Run Average at Home Games in Major League Baseball, 2022 and 2023

Team	*2022 ERA*	*2023 ERA*	*Percentage change*
Arizona Diamondbacks	4.01	4.18	**4.24**
Atlanta Braves	3.12	4.22	**35.26**
Baltimore Orioles	3.73	3.83	**2.68**
Boston Red Sox	4.59	4.73	**3.05**
Chicago Cubs	3.79	3.94	**3.96**
Chicago White Sox	4.38	4.71	**7.53**
Cincinnati Reds	4.87	4.91	**0.82**
Cleveland Guardians	3.40	3.68	**8.24**
Colorado Rockies	5.30	6.13	**15.66**
Detroit Tigers	3.85	4.47	**16.10**
Houston Astros	2.75	4.25	**54.55**
Kansas City Royals	4.48	4.96	**10.71**
Los Angeles Angels	3.70	4.46	**20.54**
Los Angeles Dodgers	3.05	3.49	**14.43**
Miami Marlins	3.87	4.09	**5.68**
Milwaukee Brewers	3.55	3.65	**2.82**
Minnesota Twins	3.56	3.81	**7.02**
New York Mets	3.06	3.89	**27.12**
New York Yankees	3.03	3.92	**29.37**
Oakland Athletics	4.55	4.92	**8.13**
Philadelphia Phillies	3.75	3.69	**-1.60**
Pittsburgh Pirates	4.59	4.67	**1.74**
San Diego Padres	3.47	3.43	**-1.15**
San Francisco Giants	3.48	3.52	**1.15**
Seattle Mariners	3.26	3.42	**4.91**
St. Louis Cardinals	3.31	4.85	**46.53**
Tampa Bay Rays	3.01	3.80	**26.25**
Texas Rangers	4.38	4.54	**3.65**
Toronto Blue Jays	4.07	3.68	**-9.58**
Washington Nationals	4.68	5.05	**7.91**

Source: Baseball-Reference.com at https://www.baseball-reference.com/

For all but three clubs, Table 3 shows that pitchers' ERAs at home games increased from 2022 to 2023. Houston Astro team ERA at home games ballooned 54.6 percent from 2022 to 2023, although the Astros finished first in their division (American League West) both years. The St. Louis Cardinals also saw their team ERA increase dramatically year-over-year (almost 47 percent), but the Cards dropped from first place in their division (National League Central) in 2022 to last place the following season. The 95 percent confidence interval on the column of percentage change differences in team ERAs year-over-year extended from an increase of 6.5 percent to an increase of 17.4 percent.

Table 4. WHIP at Home Games in Major League Baseball, 2022 and 2023

Team	*2022 WHIP*	*2023 WHIP*	*Percentage change*
Arizona Diamondbacks	1.280	1.303	**1.80**
Atlanta Braves	1.163	1.249	**7.39**
Baltimore Orioles	1.307	1.237	**-5.36**
Boston Red Sox	1.370	1.414	**3.21**
Chicago Cubs	1.244	1.269	**2.01**
Chicago White Sox	1.304	1.396	**7.06**
Cincinnati Reds	1.394	1.381	**-0.93**
Cleveland Guardians	1.141	1.255	**9.99**
Colorado Rockies	1.451	1.620	**11.65**
Detroit Tigers	1.288	1.261	**-2.10**
Houston Astros	1.040	1.314	**26.35**
Kansas City Royals	1.444	1.431	**-0.90**
Los Angeles Angels	1.197	1.390	**16.12**
Los Angeles Dodgers	1.060	1.105	**4.25**
Miami Marlins	1.290	1.249	**-3.18**
Milwaukee Brewers	1.121	1.153	**2.85**
Minnesota Twins	1.223	1.186	**-3.03**
New York Mets	1.130	1.292	**14.34**
New York Yankees	1.069	1.214	**13.56**
Oakland Athletics	1.323	1.435	**8.47**
Philadelphia Phillies	1.202	1.161	**-3.41**
Pittsburgh Pirates	1.390	1.367	**-1.65**
San Diego Padres	1.118	1.222	**9.30**
San Francisco Giants	1.275	1.178	**-7.61**
Seattle Mariners	1.087	1.125	**3.50**
St. Louis Cardinals	1.193	1.433	**20.12**
Tampa Bay Rays	1.061	1.122	**5.75**
Texas Rangers	1.335	1.282	**-3.97**
Toronto Blue Jays	1.226	1.219	**-0.57**
Washington Nationals	1.376	1.462	**6.25**

Source: Baseball-Reference.com at https://www.baseball-reference.com/

Table 4 shows team WHIPs at home games for all clubs in 2022 and 2023. Pitchers' WHIPs fared slightly better than ERAs. WHIPS fell for 11 clubs. Recall that a lower WHIP reflects fewer baserunners a pitcher has allowed per inning pitched and hence indicates a better performance. Much like the results for team ERAs in Table 3, at home WHIPs for the Astros and Cards were the two worst among the 30 MLB teams. The 95 percent confidence interval on the column of percentage change differences in team WHIPs year-over-year extended from an increase of 1.7 percent to an increase of 7.7 percent.

Table 5. Bill James' Game Score, Starting Pitchers, 2022-2023 Home Games

Pitcher	Team	Average Game Score at Home		*p*-value on difference
		2022	2023	
M. Kelly	Arizona Diamondbacks	57.76	62.20	0.3187
Z. Gallen	Arizona Diamondbacks	62.27	62.00	0.9628
Z. Davies	Arizona Diamondbacks	52.91	43.50	0.1597
M. Fried	Atlanta Braves	58.56	50.00	0.1391
C. Morton	Atlanta Braves	59.31	57.00	0.6943
S. Strider	Atlanta Braves	67.00	58.50	0.2579
D. Kremer	Baltimore Orioles	56.70	51.11	0.3467
K. Bradish	Baltimore Orioles	47.25	61.00	0.0647
T. Wells	Baltimore Orioles	48.45	57.00	0.1557
K. Crawford	Boston Red Sox	50.33	42.55	0.2620
M. Stroman	Chicago Cubs	48.83	55.08	0.4457
J. Steele	Chicago Cubs	55.29	56.33	0.8433
D. Smyly	Chicago Cubs	55.89	47.20	0.2820
K. Hendricks	Chicago Cubs	48.44	48.62	0.9783
D. Cease	Chicago White Sox	62.22	51.59	0.0833
L. Giolito	Chicago White Sox	46.21	62.40	**0.0109**
L. Lynn	Chicago White Sox	54.00	45.00	0.3514
M. Kopech	Chicago White Sox	57.69	51.14	0.2982
H. Greene	Cincinnati Reds	52.18	50.63	0.8691
G. Ashcraft	Cincinnati Reds	47.50	47.00	0.9519
S. Bieber	Cleveland Guardians	58.31	54.27	0.5207
C. Quantrill	Cleveland Guardians	55.16	43.75	**0.0413**
A. Civale	Cleveland Guardians	54.11	58.67	0.5366
K. Freeland	Colorado Rockies	42.81	46.06	0.5991
A. Gomber	Colorado Rockies	42.56	40.00	0.7399
T. Skubal	Detroit Tigers	54.60	63.50	0.2401
E. Rodriguez	Detroit Tigers	49.44	56.55	0.3817
M. Manning	Detroit Tigers	59.71	54.33	0.6749
F. Valdez	Houston Astros	56.21	58.19	0.7685
J. Verlander	Houston Astros	63.67	51.00	0.0839
C. Javier	Houston Astros	62.58	54.15	0.1246
B. Singer	Kansas City Royals	61.07	51.12	0.1057
Z. Greinke	Kansas City Royals	54.75	50.07	0.1709

S. Ohtani	Los Angeles Angels	66.36	61.64	0.3110

Table 5. Bill James' Game Score, Starting Pitchers, 2022-2023 Home Games (Continued)

Pitcher	Team	Average Game Score at Home		*p*-value on difference
		2022	2023	
P. Sandoval	Los Angeles Angels	53.38	47.42	0.3138
R. Detmers	Los Angeles Angels	57.54	53.27	0.4676
J. Urias	Los Angeles Dodgers	59.64	60.91	0.8182
T. Gonsolin	Los Angeles Dodgers	62.75	48.00	**0.0358**
C. Kershaw	Los Angeles Dodgers	61.27	64.40	0.5212
S. Alcántara	Miami Marlins	68.81	56.42	0.0511
J. Luzardo	Miami Marlins	52.38	58.00	0.4744
B. Garrett	Miami Marlins	56.25	50.93	0.5146
E. Cabrera	Miami Marlins	51.14	56.89	0.2464
C. Burnes	Milwaukee Brewers	61.89	53.50	0.1879
A. Houser	Milwaukee Brewers	50.64	50.00	0.9143
F. Peralta	Milwaukee Brewers	55.20	59.56	0.5495
J. Ryan	Minnesota Twins	58.80	57.36	0.7951
S. Gray	Minnesota Twins	57.69	58.24	0.9187
C. Carrasco	New York Mets	52.00	37.90	**0.0237**
M. Scherzer	New York Mets	66.50	61.71	0.4839
D. Peterson	New York Mets	50.10	54.90	0.4403
G. Cole	New York Yankees	62.06	61.00	0.8406
L. Severino	New York Yankees	57.70	48.50	0.2731
D. Germán	New York Yankees	52.57	53.00	0.9576
J. Kaprielian	Oakland Athletics	47.64	44.57	0.7080
P. Blackburn	Oakland Athletics	37.75	53.00	0.0684
A. Nola	Philadelphia Phillies	59.31	59.21	0.9853
R. Suárez	Philadelphia Phillies	47.23	48.67	0.7453
Z. Wheeler	Philadelphia Phillies	63.92	54.53	0.0748
M. Keller	Pittsburgh Pirates	50.69	59.64	0.1640
R. Contreras	Pittsburgh Pirates	53.00	39.00	0.1800
Y. Darvish	San Diego Padres	63.62	52.69	0.0659
J. Musgrove	San Diego Padres	58.06	57.80	0.9678
B. Snell	San Diego Padres	56.20	61.06	0.3888
L. Webb	San Francisco Giants	54.47	62.63	0.1058
A. Cobb	San Francisco Giants	56.81	60.58	0.5540
L. Gilbert	Seattle Mariners	55.71	55.73	0.9975
G. Kirby	Seattle Mariners	54.23	61.33	0.3274

Table 5. Bill James' Game Score, Starting Pitchers, 2022-2023 Home Games
(Continued)

Pitcher	Team	Average Game Score at Home 2022	2023	*p*-value on difference
L. Castillo	Seattle Mariners	68.20	60.06	0.2650
M. Mikolas	St. Louis Cardinals	62.86	46.61	**0.0047**
A. Wainwright	St. Louis Cardinals	56.06	38.18	**0.0183**
D. Hudson	St. Louis Cardinals	54.09	55.00	0.8876
J. Montgomery	St. Louis Cardinals	55.89	53.00	0.6538
S. McClanahan	Tampa Bay Rays	60.28	61.00	0.9023
M. Pérez	Texas Rangers	55.38	52.11	0.5849
D. Dunning	Texas Rangers	54.25	52.20	0.7498
J. Gray	Texas Rangers	56.88	48.80	0.3059
A. Manoah	Toronto Blue Jays	62.20	37.11	**0.0001**
K. Gausman	Toronto Blue Jays	49.31	59.63	0.1001
J. Berríos	Toronto Blue Jays	51.63	56.27	0.3915
Y. Kikuchi	Toronto Blue Jays	51.80	53.60	0.7580
P. Corbin	Washington Nationals	45.75	43.40	0.7086
J. Gray	Washington Nationals	46.85	44.92	0.7326

One might wonder how individual pitchers fared at home in 2023 (with a pitch clock) compared to the previous season (without a pitch clock). Table 5 shows the results on Bill James's "Game Score" for 83 pitchers who pitched for the same club in both the 2022 and 2023 seasons and were starting pitchers both seasons. In most cases, the two-tailed *t*-tests revealed no discernible change in average "Game Score" from one season to the next. Only Lucas Giolito (Chicago White Sox) recorded a significantly better average "Game Score" in 2023 than the year before. Six other starting pitchers (from five teams) recorded significantly lower average "Game Scores" in 2023 than in the year before. Cal Quantrill from the Cleveland Guardians who started only one game each in June and July and had no starts in August 2023 suffered a shoulder injury. Two starting pitchers from the St. Louis Cardinals (Miles Mikolas and Adam Wainwright) struggled mightily in the first year of the pitch clock relative to the year before. Adam Wainwright started his 18th and final season with the Cards in 2023 on the injured list; after the season, Wainwright revealed that he had pitched through 2023 with a torn labrum. In early 2024, the MLB Players Association claimed that the introduction of the pitch clock might have contributed to the increase in different types of arm injuries [6].

Concluding Remarks

This paper has focused on the impact Major League Baseball's first pitch clock implemented in 2023 had on various aspects of the game – for each ballclub, the average length of a home game, team-specific home attendance, ERAs and WHIPs at home, and the home performance of individual starting pitchers relative to the year before.

Games were about 13 percent (or roughly 24 minutes) shorter and attendance increased from the previous season for most but not all ballclubs. Teams whose standing in their division improved from 2022 experienced the largest attendance increases. For all but three ballclubs, ERAs at home games increased. For all but 11 ballclubs, WHIPs also increased. Among individual starting pitchers who pitched for the same ballclub in both 2022 and 2023, Bill James's measure of pitching performance dubbed "Game Score" fell for close to 60 percent of all pitchers in our sample. But, in only a half dozen instances was the drop-off statistically significant. It is reasonable to assume that by September a starting pitcher trying to adjust to the exigencies of a clock timer may be a different pitcher than he was in April.

Future research may reveal that the average "Game Score" of starting pitchers at home games in the 2024 season more closely resembled their average "Game Score" one year before the pitch clock in 2022. But in 2024 the MLB tweaked one pitch clock rule: pitchers now have 18 (not 20) seconds with runners on base. The adjustment to pitch clocks may continue to be more evident for home games than for games on the road where pitch clock locations (and pitch clock protocol) may vary from one ballpark to another. Future research may also reveal that the change in Game Score between 2022 and 2023 was affected by other rule changes such as incentivizing stealing bases and limiting pickoff attempts. An increase in the number of stolen bases would entail more opportunities for batters to score and hence lower pitchers' GSc.

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