

An Examination of the Effectiveness of the Elam Ending at TBT2018 and TBT2019

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The Elam Ending calls for the final portion of each basketball game to be played without a game clock, as a way to preserve a more natural style of play through the end of every game. The rule aims to address certain late-game strategies and phenomena attributable to the game clock under basketball's traditional, fully timed format. The Elam Ending was first implemented by TBT: The Basketball Tournament, in 2017. Since then, the format has been implemented in subsequent editions of TBT, the 2020 NBA All-Star Game, and the FIBA-sanctioned Canadian Elite Basketball League. However, limited research exists examining the effectiveness of the Elam Ending in meeting its aims. Elam (2019) used quantitative descriptive data to examine the only 11 games played under the Elam Ending at TBT2017. This study replicates the previous study, examining all 134 games played under the Elam Ending at TBT2018 and TBT2019. This study shows the Elam Ending to be effective in meeting all of its aims at TBT2018, and even more so at TBT2019 after the format was slightly modified. This study can be particularly useful for any organizer or stakeholder involved with a basketball league/event considering implementation of the Elam Ending.

Keywords: Elam Ending, TBT, The Basketball Tournament, NBA, sport innovation, rules changes, basketball

Problem Framing

In the sport of basketball, teams often employ late-game strategies designed primarily to manipulate the clock, most notably stalling by leading offenses, and deliberate fouling by trailing defenses. Over the years, these strategies have led to a choppy and passive style of play during the final stretch of games, predictable outcomes, and unceremonious endings (Elam, 2019), and these phenomena have led to fans commonly walking out or tuning out of games during the final stretch. These strategies are so concerning that, dating back to the 1950s, the National Basketball Association (NBA) and various other leagues/events have implemented rules changes in an attempt to curtail the strategies (National Basketball Association, 2016). Consider the following rules changes in the NBA:

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- 1950–1951: To de-incentivize late-game deliberate fouling, a new rule is implemented so that a jump ball is administered after made free throws during the last three minutes (instead of automatically granting possession to the team that committed the foul).
- 1952–1953: After trailing defenses circumvented the preceding rule by having a tall defender deliberately foul a short ballhandler, the rule is modified so that the jump ball is to be administered between the player who is fouled and the defender who typically guards him (instead of administering the jump ball between the player who is fouled and the defender who committed the foul); both the initial rule change and this modification were later rescinded after proving ineffective in curtailing late-game deliberate fouling.
- 1953–1954: When the preceding rules failed to curtail late-game deliberate fouling, a new rule was implemented to enforce an individual foul limit per quarter, requiring a player to sit out the rest of the quarter after committing his third foul of the quarter; this rule was later rescinded after proving ineffective.
- 1954–1955: To curtail stalling, the 24-second shot clock is introduced.
- 1954–1955: To curtail excessive fouling, a penalty free throw (“three to make two”) is awarded after the sixth team foul in any quarter; this rule was later rescinded.
- 1966–1967: With trailing teams going to greater lengths to circumvent fouling rules by deliberately fouling poor free throw shooters who are not involved in the play, a rule is implemented midyear to treat such fouls as technical fouls; a variation of this rule is currently used in the NBA, and was expanded in 2016–2017 to apply to instances when a foul is committed before an inbounds pass is entered.

Some of these rules introduced unintended consequences and have been rescinded. At best, these changes have mitigated late-game deliberate fouling and stalling, but they have not eliminated these strategies. TBT: The Basketball Tournament, a \$2 million winner-take-all annual event founded in 2014 and broadcast on the ESPN family of networks, is one such league/event whose games have included such unappealing late-game strategies and phenomena, and is one such league/event that has implemented a rules change in an attempt to curtail such strategies and phenomena. This study replicates and builds on previous research investigating the effectiveness of this particular rules change, called the “Elam Ending” (previously called the “hybrid duration format”).

The Elam Ending calls for the final portion of each game to be played without a game clock. TBT normally plays a 36-minute, fully timed game. But in 2017, TBT implemented a specific version of the Elam Ending for some of its games,

by which the game clock would be eliminated after 32 minutes of play, and teams would play to a target score equal to the leading team's score (at the time the game clock is shut off) plus seven points. For example, if the score is 65-60 when the clock is shut off, the first team to score 72 points would be the winner. (In 2019, TBT slightly modified its method for determining the Elam Ending target score, setting the target score equal to the leading team's score plus eight.)

The Elam Ending is designed to preserve a more natural style of play through the end of every game by curtailing late-game clock-manipulating strategies, and to provide more late-game excitement for fans. These elements are explored in greater detail later in the paper.

Background

In 2017, TBT implemented the Elam Ending on an experimental basis during 11 play-in round games, called the Jamboree. The remaining 63 games of the TBT2017, referred to as the Main Draw, were played under TBT's normal 36-minute, fully timed format.

Elam (2019) indicated that the Jamboree games compared favorably to the Main Draw games based on the following research questions:

1. To what extent did the Elam Ending meet its primary aims (listed below) during 2017 TBT Jamboree?
 - Eliminate/alleviate deliberate fouling by the trailing defense
 - Eliminate/alleviate stalling by the leading offense
 - Eliminate/alleviate rushed/sloppy possessions by the trailing offense
 - Provide greater hope for late comebacks (due to the above factors)
 - Provide more memorable game-ending moments
2. To what extent did the Elam Ending meet its secondary aims (listed below) during 2017 TBT Jamboree?
 - Eliminate/reduce instances when a trailing team concedes the game
 - Prevent anticlimactic overtimes
 - Prevent drawn-out final stretches (as measured in actual time)
 - Eliminate/reduce instances when a leading team allows its opponent to make an uncontested lay-up/dunk
 - Eliminate/reduce instances when a trailing team is punished for having one or more fouls to give late in a game
 - Eliminate/reduce instances when a player fouls out of a game by committing a deliberate foul and/or by committing a foul during overtime

- Eliminate/reduce instances when a trailing team rolls an inbound pass

The organizers of TBT also believed the Elam Ending compared favorably to the traditional format, and implemented the Elam Ending for all 71 games of its 2018 event, and all 63 games of its 2019 event. Other leagues and events have followed suit—the Elam Ending has since been implemented in grassroots-level leagues and events throughout the US and abroad, in the FIBA-sanctioned Canadian Elite Basketball League, and most notably at the 2020 NBA All-Star Game.

However, further research is needed for a variety of reasons, and this study (focusing on the 134 games played under the Elam Ending during TBT2018 and TBT2019) is intended to address that need. Among these reasons, the initial study included a relatively small sample size (11 games); the Elam Ending has since been modified (most notably, entering TBT2019, eight points were added to the leading team's score to determine the game's target score, rather than seven points as had been added previously); and it is important to account for any emerging or evolving strategies employed by teams playing in games under the Elam Ending. This study can be useful to organizers of leagues/events considering implementation of the Elam Ending, to coaches/players/officials who might participate in games played under the Elam Ending, and to anyone who might serve as a stakeholder to such leagues/events.

For this study, research questions are organized by the Elam Ending's broader intended benefits: to preserve a more natural style of play through the end of every game, and to provide more late-game excitement for fans.

1. To what extent did the Elam Ending contribute to a more natural style of play in the following ways during TBT2018 and TBT2019, relative to TBT2017 Main Draw?
 - Eliminate/alleviate deliberate fouling by the trailing defense
 - Eliminate/alleviate stalling by the leading offense
 - Eliminate/alleviate rushed possessions by the trailing offense
 - Eliminate late-game clock controversies and reviews
 - Eliminate/reduce instances when a leading team allows its opponent to make an uncontested lay-up/dunk
 - Eliminate/reduce instances when a trailing team is punished for having one or more fouls to give late in a game
 - Eliminate/reduce instances when a player fouls out of a game by committing a deliberate foul and/or by committing a foul during overtime
2. To what extent did the Elam Ending provide more late-game excitement to fans in the following ways during TBT2018 and TBT2019, relative to TBT2017 Main Draw?

- Provide greater hope for late comebacks
- Provide more memorable game-ending moments
- Eliminate/reduce instances when a trailing team concedes the game
- Prevent drawn-out final stretches in lopsided games

Methods

This study focuses on 134 games (71 games at TBT2018, 63 games at TBT2019), each of which was played under the Elam Ending format. For comparison, this article also discusses all 63 games of TBT2017 Main Draw, each of which was played under a traditional, fully timed format (36 minutes, played in two 18-minute halves). When possible, direct comparisons are made between the Elam Ending and the traditional format. For categories where a direct comparison is not possible, relevant information is provided for context. Data were gathered by viewing online/television broadcasts of the games, using rewind/pause/etc. functions when necessary. For each of the explanations in the Findings and Analysis section, the term “**final stretch**” refers to the untimed portion of the fourth quarter in games where the Elam Ending is used, and refers to the final four minutes of regulation and all of overtime in games played under a traditional format.

Findings and Analysis

Deliberate Fouls

Deliberate fouls are those committed with the primary purpose of stopping the clock (not those committed in the normal course of play), as evidenced by unusual body language (lunging, overly aggressive play, etc.) used to commit the foul. The prevalence of deliberate fouling is indicated by the percentage of periods during which such a foul is committed, and the mean number of such fouls committed during applicable periods is provided. When assessing the effectiveness of deliberate fouling, for any period where the trailing team commits such a foul, the relative score at the time of the first deliberate foul is compared to the relative score at the end of the period.

During TBT2018 and TBT2019 (both played under the Elam Ending), one of 71 games (1.4%) and zero of 63 games (0%), respectively, included late-game deliberate fouling by the trailing team leading up to or during the final stretch. In the one applicable instance, the trailing team narrowed its deficit, but still lost.

During TBT2017 Main Draw (played under the traditional format), 42 of 68 (61.8%) second-half/overtime periods included deliberate fouling by the trailing team during the final stretch, and its ineffectiveness is illustrated in Table 1.

Table 1: Effectiveness of Deliberate Fouling

| Level of Effectiveness | Instances at TBT2017 (Traditional Format) | Instances at TBT2018 (Elam Ending) | Instances at TBT2019 (Elam Ending) |
|--|--|---|---|
| Trailing Team (Fouling Team) Maintained or Widened Its Deficit | 36 | 0 | 0 |
| Trailing Team (Fouling Team) Narrowed Its Deficit, but Still Lost in Same Period | 4 | 1 | 0 |
| Trailing Team (Fouling Team) Ended Same Period in Tie (Necessitating Overtime) | 1 | 0 | 0 |
| Trailing Team (Fouling Team) Won Game in Same Period | 1 | 0 | 0 |

In applicable periods, the trailing team committed an average of 2.6 deliberate fouls. This indicates that under the traditional format, even though deliberate fouling serves as a trailing team's best and only option, it still offers little hope of overcoming a late deficit.

Stalling

When assessing the prevalence of **stalling**: any game is counted if, on at least one possession during the final stretch (or during the two minutes leading up to the final stretch), the leading team makes no attempt to advance the ball inside the three-point arc during the first 20 seconds of the possession. This could indicate if and to what extent leading teams manipulate the game clock while on offense.

During TBT2018 and TBT2019 (Elam Ending), 25 of 71 games (35.2%) and 24 of 63 games (38.1%), respectively, included stalling by the leading team in the two-minute stretch leading up to the final stretch (none of the games included stalling during the final stretch).

During TBT2017 Main Draw (traditional), 67 of 68 second-half/overtime periods (98.5%) included stalling by the leading team. This indicates leading teams manipulated the game clock more frequently under the traditional format.

Rushed Possessions

When assessing offensive proficiency during **rushed possessions**, for traditional format games, points per possession is calculated for any possession at the true end of the second half/overtime where the offense is tied or trailing by three or fewer points (actual buzzer-beater attempts). Potential **buzzer-beater** attempts are also examined for any possession where the shot clock is turned off near the

end of the second half/overtime where the offense is tied or trailing by three or fewer points. Poor quality of offensive play in these situations could indicate that the traditional format (and its associated game clock) is related to rushed possessions. There is no direct equivalent for Elam Ending games, but quality of offensive play during high-leverage possessions is assessed by points per possession during virtual sudden-death scenarios (when both teams are three points or fewer from the target score). T-tests are conducted to determine if a statistically significant difference exists between the means of points scored per applicable possession during the Elam Ending, and the means of points scored per applicable possession during the traditional format.

During TBT2018 and TBT2019 (Elam Ending), offenses scored an average of 0.80 points per possession and 1.18 points per possession, respectively, during virtual sudden-death situations.

During TBT2017 Main Draw (traditional), 14 second-half/overtime periods ended with a possession that could have tied or won the game (*actual* buzzer-beater attempts). Only one of those possessions (7.1%) was converted, on 0.21 points per possession, in the following fashion: one banked-in three-pointer, three instances when time expired before a team could attempt a shot, two airballs, one three-quarter-court heave that hit off the top of the backboard, two halfcourt shots that did not hit the rim, four additional missed long jumpers (three of which did not hit the rim), and one missed lay-up.

Offenses converted only 11 of 31 (35.5%) *potential* buzzer-beater attempts (any second-half/overtime possession where the offense is tied or trailing by 1–3 points, with the shot clock turned off), on 0.81 points per possession. This quality of offensive play, with the game clock ticking down, is far inferior to the quality of offensive play throughout the course of a game (approximately one point per possession). T-tests indicate that offenses were able to maintain a significantly superior proficiency (as measured in points per possession) during sudden-death scenarios under the Elam Ending at TBT2018 ($M = 0.80$) compared to actual buzzer-beater attempts under the traditional format at TBT2017 ($M = 0.21$), $t = -1.99$, $p = .03$, and that offenses were able to maintain a significantly superior proficiency during sudden-death scenarios under the Elam Ending at TBT2019 ($M = 1.18$) compared to actual buzzer-beater attempts under the traditional format at TBT2017 ($M = 0.21$), $t = -2.83$, $p = .003$. T-tests did not indicate a significant difference at the $p < .05$ level when comparing offensive proficiency during sudden-death scenarios under the Elam Ending at TBT2018 ($M = 0.80$) and potential buzzer-beater attempts under the traditional format at TBT2017 ($M = 0.81$), $t = 0.006$, $p = .50$, nor when comparing offensive proficiency during sudden-death scenarios under the Elam Ending at TBT2019 ($M = 1.18$) and potential buzzer-beater attempts under the traditional format at TBT2017 ($M = 0.81$), $t = -1.34$, $p = .09$.

Table 2: Offensive Proficiency during Applicable Late-Game Situations

| Situation | Points Per Possession |
|--|-----------------------|
| TBT2017 Actual Buzzer-Beater Attempts | 0.21 |
| TBT2017 Potential Buzzer-Beater Attempts | 0.81 |
| TBT2018 Sudden-Death Scenarios | 0.80 |
| TBT2019 Sudden-Death Scenarios | 1.18 |

Clock Controversies and Reviews

During TBT2017 Main Draw (traditional), 13 game-clock controversies, errors, and reviews occurred during the final stretch with details to follow. This concern is unique to the traditional format, as the Elam Ending eliminates any possibility of a game-clock-related controversy, error, or review during the final stretch.

- Lasted a few moments (reset 0.8 to 1.0 after a made basket)
- Lasted 1–2 minutes (reset 28.9 to 30.6 after a made basket)
- Lasted one minute (confirmed that shot was released before time expired)
- Lasted 1–2 minutes (reset 14.8 to 15.4 after a made basket)
- Lasted two minutes (reset 0.4 to 0.7 after ball out of bounds)
- Clock continued to run after made basket at 43.0; error went unaddressed
- Clock continued to run after made basket at 9.0; error went unaddressed
- Clock continued to run after made basket at 4.0; error went unaddressed
- After a shot clock violation at 0.8, official orders game clock to start again and run down to 0.0 without an ensuing inbounds pass
- Clock continued to run after made basket at 57.0; error went unaddressed
- Clock continued to run after made basket at 9.0; error went unaddressed
- Lasted a few moments (reset 0.0 to 0.3 after a deliberate foul)
- Clock continued to run for two full seconds after timeout called at 1:08; error went unaddressed

Uncontested Shots

During TBT2018 and TBT2019 (Elam Ending), leading teams allowed two and zero uncontested field goals, respectively, during the final stretch.

During TBT2017 Main Draw (traditional), leading teams allowed 32 uncontested field goals during the final stretch so as to avoid committing a clock-stopping foul.

Fouls-to-Give Disadvantage

During TBT2017 Main Draw, in eight second-half/overtime periods, a trailing team committed a deliberate foul when its opponent was not yet in the bonus. In these instances, trailing teams were at a further disadvantage—a disadvantage unique to the traditional format—because they had not committed enough fouls earlier in the period to send the leading team to the free throw line.

The Elam Ending eliminates the **fouls-to-give disadvantage**, because a trailing team does not have an incentive to stop the clock by fouling.

When assessing the occasional disadvantage of having one or more fouls to give, any traditional format game is counted if, during the final stretch, the trailing team commits a deliberate foul when their opponent is not yet in the bonus (in such instances, the leading team's possession is actually prolonged, when the trailing team seeks to end the possession as soon as possible). Instances of the fouls-to-give disadvantage could indicate that the traditional format disadvantages trailing teams.

Foulouts

During TBT2017 Main Draw (traditional), six players committed their sixth foul deliberately and/or during overtime, a phenomenon unique to the traditional format.

During TBT2018 and TBT2019 (Elam Ending), no player fouled out while committing a deliberate foul (and no overtime periods are played under the Elam Ending).

Provide Hope for Late Comebacks

When assessing **hope for late comebacks**, no direct comparison is possible between the Elam Ending and the traditional format. The Elam Ending is designed to address the remote likelihood of a comeback seen under the traditional format once a trailing team resorts to deliberate fouling. However, there is no corresponding phenomenon (where trailing teams foul deliberately) under the Elam Ending. Even though the deliberate fouling phenomenon is normally confined to the last minute of play under the traditional format, the Elam Ending is set as early as 4:00 so as to prevent trailing teams from resorting to the deliberate fouling strategy as the timed portion of the game winds down. An indirect comparison is made between formats to provide context regarding

hope for late comebacks, with an indication of how many games under the traditional format were won by the team that trailed at the 4:00 mark, and of how many games under the Elam Ending were won by the team that trailed at the start of the final stretch.

During TBT2017 Main Draw (traditional), four games (6.3%) were won by the team that trailed at the start of the final stretch, with starting deficits of 1, 1, 3, and 3 points, respectively. Note that three of the four teams overcame their deficit early in the final stretch, before (and consequently, without) having to resort to the largely ineffective strategy of deliberate fouling.

During TBT2018 (Elam Ending), two games (2.8%) were won by the team that trailed at the start of the final stretch, though with larger starting deficits of 6 and 9 points, respectively.

During TBT2019 (Elam Ending), five games (7.9%) were won by the team that trailed at the start of the final stretch, with starting deficits of 1, 3, 3, 4, and 4 points, respectively. As one might intuitively hypothesize, these findings indicate the “plus-8” setting of determining the target score, used in TBT2019, is more conducive to late comebacks than the plus-7 setting used at TBT2018.

Game-Ending Moments

When assessing **game-ending moments**, a direct comparison between formats is not possible. For Elam Ending games, game-ending shots are categorized by shot type. For traditional format games, game endings are categorized in exactly one of the following ways: Meaningful Made Basket (a shot that wins the game for the offensive team, when a missed shot would have resulted in an immediate loss or sending the game to overtime); Unsuccessful Meaningful Possession (where the offense trails by 1–3 points); Meaningless Shot Attempt (where the offense already leads, or trails by 4+ points); Leading Player Stalls (dribbling out clock or holding ball); and Trailing Player Stalls (dribbling out clock or holding ball).

During TBT2018 and TBT2019 (Elam Ending), the 71 and 63 games, respectively, ended as indicated in Table 3. The 63 games of TBT2017 Main Draw ended as indicated in Table 4.

Table 3: Game-Ending Moments during TBT2018 and TBT2019 (Elam Ending)

| Game Ending Type | Instances (TBT2018) | Instances (TBT2019) |
|----------------------|---------------------|---------------------|
| Three-Pointer | 26 (36.6%) | 18 (28.6%) |
| Two-Point Field Goal | 31 (43.7%) | 28 (44.4%) |
| Free Throw | 14 (19.7%) | 17 (27.0%) |

Table 4: Game-Ending Moments during TBT2017 Main Draw (Traditional Format)

| Game-Ending Type | Instances |
|------------------------------------|------------|
| Meaningful Made Basket | 1 (1.6%) |
| Unsuccessful Meaningful Possession | 8 (12.7%) |
| Meaningless Shot Attempt | 22 (34.9%) |
| Leading Player Stalling | 29 (46.0%) |
| Trailing Player Stalling | 3 (4.8%) |

Conceding

When assessing the prevalence of trailing teams **conceding games**, for traditional format games, any game is counted if the trailing team elects not to foul deliberately while on defense on at least one possession during the final stretch when the strategy would have been advisable, and/or if the trailing team elects not to play at a frantic pace while on offense on at least one possession during the final stretch when the strategy would have been advisable.

During TBT2017 Main Draw (traditional), trailing teams conceded 45 of 63 games (71.4%). This indicates that in many games under the traditional format, trailing teams felt they did not have a realistic chance to mount a late comeback and win the game. This is associated with a combination of factors unique to the traditional format: the most effective strategy for mounting a comeback (deliberate fouling) is hardly effective at all, and this particular strategy necessarily draws out the final stretch of the game. Consequently, trailing teams are compelled to overtly concede in the name of good sportsmanship.

In TBT2018 and TBT2019 (Elam Ending), trailing teams conceded zero games. The nature of the Elam Ending format offers hope for a comeback as long as the trailing team can prevent its opponent from reaching the target score.

Drawn-Out Final Stretches

When assessing whether the final stretch is **drawn-out**, no direct comparison is possible between formats, because the traditional format always includes exactly 4:00 of game time during the final stretch, whereas the Elam Ending includes a varying amount of game time during the final stretch. Information is provided for context by correlating the margin of victory in Elam Ending games with the amount of theoretical game time elapsed during the final stretch. This correlation indicates to what extent the Elam Ending is effective in ending lopsided games more quickly than competitive games.

In TBT2018 and TBT2019 (Elam Ending), an appealing dual effect has emerged related to time elapsed, where most lopsided games end more quickly, and where most of the lengthier final stretches are in games where the trailing team's win probability is necessarily increasing (the leading team is not reaching the target score, and the trailing team is closing the deficit). This is very different from the traditional format, where many of the most drawn-out finishes are in games where the trailing team's win probability is not increasing (by fouling repeatedly, their deficit is most often maintained or widened).

More specifically, the correlation coefficient between margin of victory ($M = 13.6$, $SD = 8.92$) and theoretical game time elapsed during the final stretch ($M = 2:50.3$, $SD = 83.4$) at TBT2018 is -0.36 , indicating a weak to moderate negative correlation.

The correlation coefficient between margin of victory ($M = 10.2$, $SD = 7.62$) and theoretical game time elapsed during the final stretch ($M = 3:32.0$, $SD = 90.8$) at TBT2019 is -0.33 , indicating a weak to moderate negative correlation. These relationships are further illustrated in the scatterplot in Figure 1.

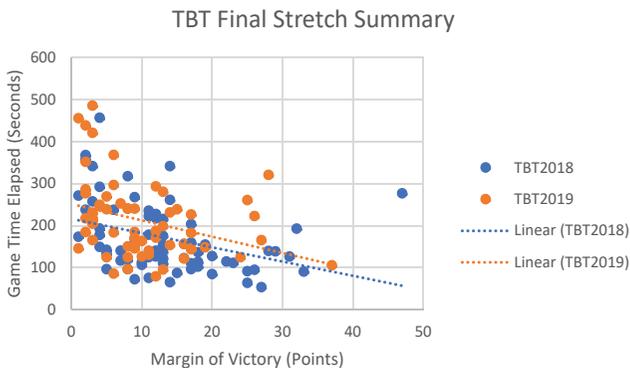


Figure 1. Final Stretch summary of TBT2018 and TBT2019 games.

When assessing the appropriateness of the settings of the Elam Ending, for each Elam Ending game, the amount of **theoretical game time** is tracked during the **final stretch** (the ideal amount is four minutes); also, seven (for TBT2018 games) or eight (for TBT2019 games) is divided by the mean of the teams' scores at the end of the timed portion of the game (the ideal quotient is 0.125). Games that adhere relatively closely to this amount of theoretical game time and/or quotient could indicate that the settings are appropriate. Games that stray greatly from this amount of theoretical game time and/or quotient could indicate that the settings are inappropriate (and should be increased or decreased).

The 2019 version of the Elam Ending proved to be a slight improvement over the 2018 version. The most notable change was using plus-8 instead of plus-7 to set the target score. During TBT2018 (when the target score was set by adding seven points to the leading team's score), an average of 2:50 worth of game time elapsed during the final stretch, well below the 4:00 worth of game time displaced by eliminating the game clock. Also, seven points corresponds to 10.0% of the average scoring output during the timed portion of the game (70.20 points per team), below the 12.5% mark as designed for TBT. During TBT2019 (when the target score was set by adding eight points to the leading team's score), an average of 3:32 worth of game time elapsed during the final stretch, much closer to the 4:00 worth of game time displaced by eliminating the game clock. Also, eight points corresponds to 11.1% of the average scoring output during the timed portion of the game (71.83 points per team), much closer to the 12.5% mark as designed for TBT.

A second, minor, modification applied in instances when the first stoppage at or under 4:00 happened to be a shooting foul (in 2019, the resulting free throws were administered before setting the target score; prior to 2019, such free throws were administered after setting the target score) proved beneficial. These changes combined to increase the amount of game time elapsed during the untimed final stretch, so that it corresponded much more closely to the 4:00 worth of game time displaced, and also provided a greater opportunity for trailing teams to mount a comeback during the untimed final stretch, leading to exciting and unpredictable finishes.

Limitations

Limitations of the study include some categories, as previously indicated, where a direct comparison between formats is not possible. Additionally, while nearly all data categories were entirely objective or very close to it, one category in particular (Uncontested Shots) required a moderate level of subjectivity when gathering data, as certain plays required tough judgment calls as to whether a

shot was willingly allowed by the defense, or because the defense was unwillingly caught in an unfavorable position.

Conclusion

By nearly every measure explored by Elam (2019), and replicated in this study, the Elam Ending compares favorably to the traditional format in TBT play. These results serve to support the Elam Ending's increased implementation in grassroots-level leagues/events throughout the US and abroad into 2020, at the FIBA-sanctioned Canadian Elite Basketball League, and at the 2020 NBA All-Star Game, and call for serious consideration for implementation in additional leagues/events in the future.

The Elam Ending continues to evolve. In 2020, TBT implemented a further modification, where any foul on the floor during the untimed portion of the game results in one free throw and the team that was fouled retaining possession, instead of resulting in the traditional two free throws. The primary intended effect is that *leading* teams will no longer be compelled to foul deliberately during a very specific late-game scenario (where the offense is exactly three points from the target score, and the defense is exactly one or two points from the target score; this scenario arose in 12 games combined in TBT2018 and TBT2019, eight of which the defense committed a foul). This rule modification aims to produce additional residual benefits, including reducing the percentage of games that end with a free throw, and completely eliminating any inclination whatsoever for a trailing team to foul deliberately during the untimed final stretch (a strategy employed only once—futilely, at that—in the 134 combined games played at TBT2018 and TBT2019).

Further research is necessary to assess the effectiveness of this particular rule modification and any further modifications in the future. Further research is also necessary to assess the effectiveness of the Elam Ending in other leagues/events that implement the format, and to study the perceptions of the format by various stakeholders and onlookers.

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