

Baseball: On the Clock



Analyzing the Effects of the new Pitch Clock

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Abstract

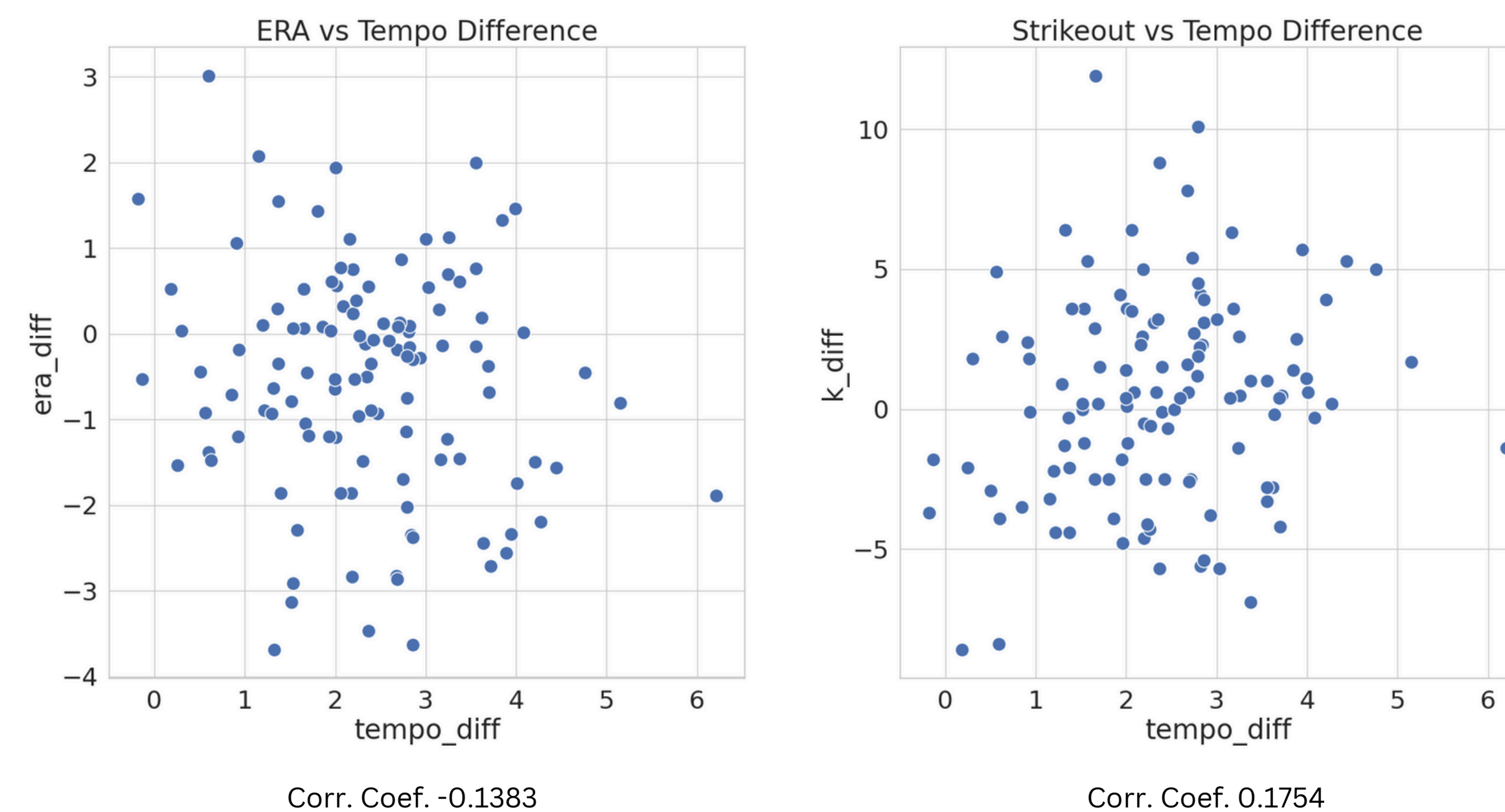
In 2023, Major League Baseball implemented a pitch clock in an effort to speed up the pace of play of games. There has been ample research on how this improved the length of games and its effect on the fan experience, but there has not been much public research into the pitch clock's effect on the performance of pitchers. Using data from the advanced statistical website Baseball Savant, I researched some trends in the correlation of pitcher tempo to performance over the last several seasons and how this changed during the 2023 season with the implementation of the pitch clock. I have used a few different tests to assess the statistical differences in pitcher tempo and performance from the pre clock and clock eras and will use this to assess how the clock has effected pitchers.

Data

From Baseball Savant

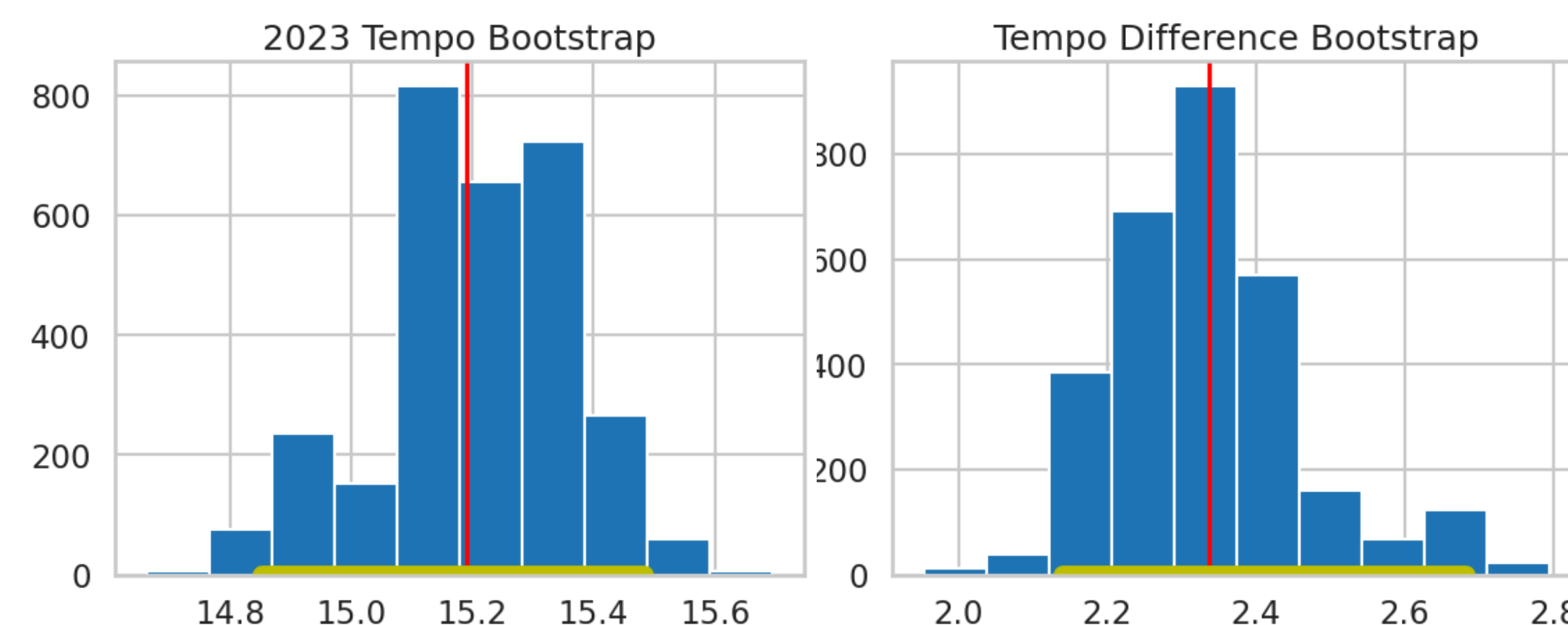
Tempo is a metric tracked by Baseball Savant that represents the median seconds between pitches a pitcher takes while the bases are empty.

Linear Model



As evident by the low correlation coefficients, there is almost no correlation between a change in tempo and a change in strikeout percentage or earned run average.

Bootstrap



Our test staistics are near the middle of the confidence interval, thus our statistics are to be expected.

Permutation Test

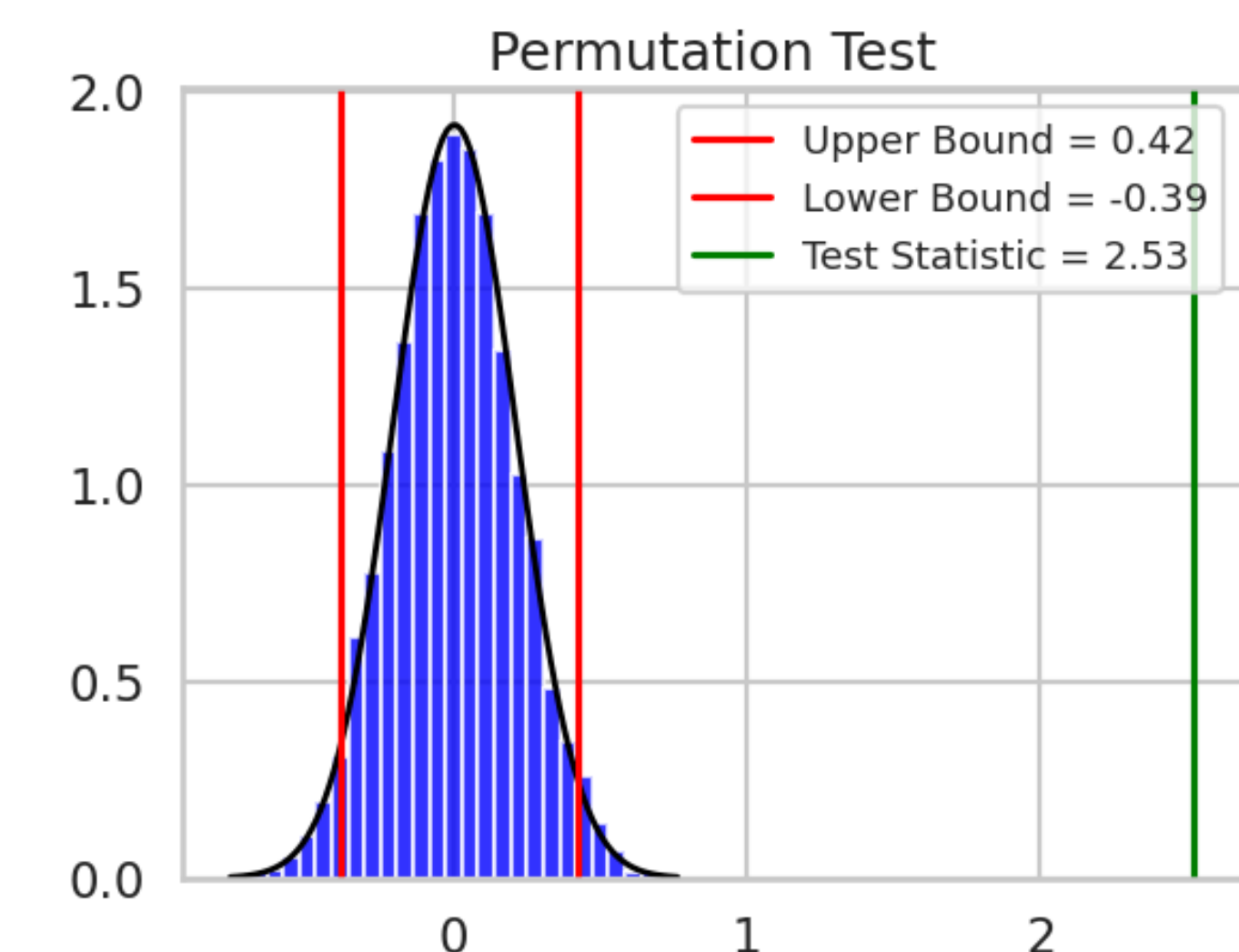
Hypothesis:

Null Hypothesis: the tempos from 2022 and 2023 are the same

Alternative Hypothesis: the tempos from 2022 and 2023 are different

Conclusion

The 95% confidence interval is (-0.42 to 0.42) and the real difference is 2.53. Since the real difference is outside of the confidence interval, we reject the null hypothesis that the 2022 and 2023 pith tempos are the same.



Conclusion

While the implementation of the pitch clock was a very controversial event, which received pushback from several pitchers, it did not have a significant effect on the performance of MLB pitchers as a whole. There are a few outliers in performance that could have been due to the clock, but there is no way to know for sure. With the benefits from the pitch clock on pace of play alrrady well documented, the implementation of the pitch clock in 2023 appears to have little negative side effects on the game.