Running it Twice (or Thrice): Double-Header and Triple-Header Baseball Arbitration

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What is the optimal way to resolve a dispute that is limited to a number and where the resources exist for more than one decisionmaker?

Introduction

- The answer to this question is important for a wide range of business and legal matters, such as setting salary increases for unionized employees, deciding cross-border tax disputes, and determining the amount of damages once liability is determined.

- However, the outcome can be "noisy" (Kahneman et al., 2021) even when multiple judges independently decide the case and the results are then averaged.

- While the Law of Large Numbers holds that as a sample size increases, the sample mean converges to the population mean, this convergence may not happen in the typical case where a small number of judges are randomly selected from a large pool of potential judges and each judge has free rein as to what to award.

- Phrased another way, the problem in the typical case is that a single outlier judge in a small sample can issue an extreme award that can skew the "average."

- But this pitfall can be avoided in a binary choice setting where an individual judge can only issue one of two possible awards.

- My proposal—Double-Header Baseball Arbitration and Triple-Header Baseball Arbitration—aims to reduce "noise" in legal decision-making by taking advantage of the binary choice format of final offer arbitration.

Final Offer Arbitration (FOA)

- In FOA, each party submits a proposed number, and the arbitrator is required to select one of the numbers as the award.

- The rationale of FOA is that it incentivizes each party to submit a reasonable number so that it will be selected by the arbitrator, and if the submitted numbers are closer, settlement is more likely.

- Major League Baseball (MLB) famously uses a version of FOA to set the salaries of certain players, where three arbitrators collectively select (under a majority vote rule) either the player's or team's proposed salary figure as the award.

My Proposal—Variation No. 1 Double-Header Baseball Arbitration (DHBA)

- DHBA plays out like regular FOA, except that two arbitrators, independently of each other, decide which of the parties' numbers to award.

- If both arbitrators agree on a number, then that is the award.

- If they disagree, then the award is the midway point between the two parties' numbers.

My Proposal—Variation No. 2 Triple-Header Baseball Arbitration (THBA)

- In THBA, three arbitrators, independently of each other, decide which of the parties' numbers to award.

- If all three arbitrators agree on a number, then that is the award.

- If the arbitrators split 2-1, the award is set at the applicable two-thirds point between the parties' numbers.

Conclusions

- My proposal offers a mathematically powerful way to reduce "noise" in legal decision-making by utilizing the Law of Large Numbers in a binary choice setting.

- My proposal will also reduce the "bias" inherent in FOA resulting from the less risk averse party taking advantage of the high variance of FOA to compel favorable settlements, as recently observed in the MLB context (Carig, 2019).

- By reducing the leverage of the less risk averse party, DHBA and THBA will help level the playing field in settlement negotiations and produce settlements at a number that better reflects true value.

References

Hasday, M. J. (2020, March 6). *Running it Twice (or Thrice): Double-Header and Triple-Header Baseball Arbitration* [Paper presentation]. MIT Sloan Sports Analytics Conference, Boston, MA, United States. https://www.sloansportsconference.com/research-papers/running-it-twice-or-thrice-double-header-and-triple-header-baseball-arbitration

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Carig, M. (2019, March 29). 'Ready to strike tomorrow': How one $20 toy belt captures the strife within a $10 billion industry. *The Athletic*. https://theathletic.com/888513/2019/03/29/ready-to-strike-tomorrow-how-one-20- trinket-captures-the-strife-within-a-10-billion-industry.

Through probability analysis, I demonstrate that DHBA and THBA will substantially lessen the variance and improve the accuracy of the outcomes compared to FOA used in MLB Arbitration, as the following table illustrates:

	FOA used in MLB	DHBA	THBA
Award Outcomes and Probabilities	$5 million (30%)	$5 million (10%)	$4.33 million (30%)
	--	$4 million (60%)	$3.67 million (60%)
	$3 million (70%)	$3 million (30%)	$3.00 million (10%)
Average "Error"	$920,000	$480,000	$320,000

Assumptions

- Team Bid: $3 million
  Player Bid: $5 million

- Five Possible Arbitrators: A, B, C, D, and E
  A, B, and C side with Team
  D and E side with Player

- Error equals the absolute value of the difference between an award and $3.8 million (the average award of the five Arbitrators)