

Biased Referees? Are Darker Skin Toned Soccer Players More Likely to Receive Red Cards?

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Abstract

We apply Hierarchical Generalized Linear Models (HGLM) to examine whether soccer referees are more likely to give red cards to darker skin toned players. A three-level model is specified to take into account the nested nature of the dataset, in which each player-referee dyad is nested within a referee who is further nested within a referee country. As red cards are rare in soccer games and are positively skewed resembling a Poisson distribution, a Poisson sampling model is used. The results show that referees are more likely to give red cards to darker skin toned players than their lighter skin toned counterparts. This bias toward darker skin toned players, moreover, is rather persistent and does not vary with either implicit or explicit skin-tone prejudice across countries.

One Sentence Summary

Soccer referees are more likely to give red cards to darker skin toned players.

Results

We use Hierarchical Generalized Linear Models (HGLM) with a Poisson Sampling model and a log link function to examine whether soccer referees are more likely to give red cards to darker skin toned players. A three-level HGLM is specified, in which each player-referee dyad (i.e., level 1) is nested within a referee (i.e., level 2) who is further nested within a referee country (i.e., level 3). Skin ratings of photo by the two raters are averaged measure player skin tone at level 1. Games, the number of game in the player-referee dyad, are included as a level 1 control variable. Skin tone ratings and games are group-mean centered at level 1. In addition, Leagueid, Positionid, and implicit and explicit prejudice scores are controlled to rule out alternative explanations. The results show that skin tone ratings have a positive effect ($b = .26$, $t = 2.84$, $p < .05$) on red cards giving to a player. The effect size in risk ratio is 1.30 with the 95% confidence interval [1.08, 1.56]. Neither implicit nor explicit prejudice scores for referee countries interact with skin tone ratings to predict red cards.

Initial Approach

Final Approach

Initially, yellowcards, age, weight, height, victories, ties, and a measure of referee's experience of games were controlled. Based on the feedback we received, we decide to exclude these abundant controls. The results remain whether or not these controls are included.

Conclusion

Referees are more likely to give red cards to darker skin toned players than their lighter skin toned counterparts. This bias toward darker skin toned players, moreover, is rather persistent and does not vary with either implicit or explicit skin-tone prejudice across countries.

References and Notes

Raudenbush, S. W., & Bryk, A. S. 2002. Hierarchical linear models: Applications and data analysis methods (2nd Edition). Newbury Park, CA: Sage Publications.