

Reported Rationales for Covariate use

The following overview shows teams' reported initial rationale for including certain covariates (at time of submitting their first analytical approach). The information in parentheses shows the team number and Yes/No indicate whether the team also used the particular covariate in their final model.

Position

- For example, perhaps (and it appears to be the case) defenders receive many more cautionary cards than the average forward. Since this is the case we must control for it either in the form of a player-position fixed effect or a more over-arching player fixed effect (1Yes).
- We controlled for player position because some field positions are more likely to receive a red card, since their role make them commit more fouls. (3Yes)
- In regards to the position - Center Midfielder variable was not included in the final model as a covariate because it seemed more parsimonious to exclude this variable because it did not contribute significantly to the model and its removal did not have a meaningful impact on the relation of interest (the relation between skin tone and red cards). This process was carried out until all of the remaining variables had coefficients that were statistically significant and whose removal resulted in a significant decrement in model fit. (12Yes)
- We felt position could influence the overall number of red cards given to players (14Yes)
- Positions that require more cardable activities would get carded more independent of skin tone (19Yes)
- We controlled for positions because defensive players (goalkeepers and defenders) may commit more fouls and thus receive more red cards (20Yes)
- From background knowledge of soccer we reasoned that player identity, league, player position and referee identity would effect likelihood of a red card being awarded (23Yes)
- We wanted to keep some consistency with the Price & Wolfers paper, we believed that these variables would help make the model more exchangeable in the players, and they made sense to my research assistant (a former college soccer player). (25Yes)
- We assumed that the likelihood of receiving a red card would vary with a player's position. Defending player should be especially prone to foul opponents severely while trying to prevent them from scoring (28Yes)
- Position was included because some positions are more likely to receive red cards than others (32Yes).

Height

- Assume for instance that players of a certain skin tone on average are taller than other players, and that taller players are on average awarded more red and yellow-red cards. Then, if we do not control for height, it may appear as if players of that particular skin tone are discriminated against although it is rather their height, and not their skin tone, that increases their likelihood of receiving a red or yellow-red card. (14Yes)
- We controlled for height and weight because conceivably, bigger players may have more advantage fighting for position and thus be more likely to engage in bodily contact, which may increase the chance of committing fouls (and thus, receiving red cards). (20No)
- Note that we choose for height over weight (that correlated with each other, obviously) because weight did not predict red cards when controlled for height. (21Yes)
- We wanted to keep some consistency with the Price & Wolfers paper, we believed that these variables would help make the model more exchangeable in the players, and they made sense to my research assistant (a former college soccer player). (25Yes)
- Physical conditions (i.e., weight and height) may confound with skin tone as darker skinned players may be stronger or weaker (26Yes)
- We thought physical features could influence red card, since being hit by taller and heavier players may give greater effect (31Yes)
- Height and weight were included because taller and heavier players seem to have more chance of getting a card with more games (32No)

Weight

- heavier players may be slower, and thus more prone to physical play to slow down their faster competitors (<http://thomasswan.hubpages.com/hub/Top-10-Most-Red-Cards-Premier-League>) (12Yes)
- We wanted to keep some consistency with the Price & Wolfers paper, we believed that these variables would help make the model more exchangeable in the players, and they made sense to my research assistant (a former college soccer player). (25Yes)
- Physical conditions (i.e., weight and height) may confound with skin tone as darker skinned players may be stronger or weaker (26Yes)
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League Country

- For example, if darker skin toned players are more (or less) prevalent in Spain's league, and Spain's league gives out more (or fewer) redcards, then the coefficient on skin tone in a regression without league of play would be biased. (Team2Yes)
- We also controlled for league country because some leagues are more strict in applying the rules, so the referees are more likely to give red cards to different players. (3Yes)
- We controlled for League in testing question 1 because there is an association between league and skintone and between league and Redcards such that a bias may be explained by the different distribution of skintone within each league and by the different distribution of redcards within each league. (15Yes)
- From background knowledge of soccer we reasoned that player identity, league, player position and referee identify would effect likelihood of a red card being awarded (23Yes)
- We, furthermore, found that skin tone is not evenly distributed across league countries (28Yes)
- League was include because there are differences in the number of red cards by league (32No)

Age

- We controlled for age because impulsivity, which may be associated with receiving red cards, tends to decrease with age (Steinberg et al., 2008). / Steinberg, L., Albert, D., Cauffman, E., Banich, M., Graham, S., & Woolard, J. (2008). Age differences in sensation seeking and impulsivity as indexed by behavior and self-report: evidence for a dual systems model. *Developmental psychology*, 44(6), 1764. / (20No)
- Age, as a common demographic variable is normally controlled for (26No)

Goals

- The number of goals can be an indicator of the character of the game (31Yes)

Club

- Position and club alone predicted frequency of red cards. Therefore, it was necessary to control for both of these potential confounds in all analyses of skin tone effects (10No).

Victories

- Players may be less likely to commit a foul (and thus receive a red card) if their team won the game. In contrast, they may play more aggressive defense and commit fouls if their team lost the game. Thus, we controlled for the outcomes of the games (victories and defeats) and number of goals (20No)

Yellow Cards

- Since the purpose of the study is to examine the unique effect of skin tone on red cards received, yellow cards; indicating less server punishment is necessary to be controlled for (26No)