

The Quarterback and the Situation: Evidence for the Fundamental Attribution Error in Evaluations of Quarterback Success

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Research Questions

Do people commit the fundamental attribution error in the real world?

Does the fundamental attribution error influence quarterback evaluation in football?

Introduction and Current Investigation

In this investigation, we conducted two studies to examine whether people commit the fundamental attribution error in evaluations of quarterback success.

- In **Study 1**, we examined the degree to which people attribute a quarterback's success to specific performance factors and whether they consider those factors to be either individual or situational.
- In **Study 2**, we predicted quarterback success in the NFL using both individual ability factors and situational factors derived from Study 1.

What is the fundamental attribution error?

- The tendency to overestimate the impact of individual factors and underestimate the impact of situational influences when attributing the causes of others' behavior (Ross, 1977).
- "About 95% of all data on the fundamental attribution error have emerged from tightly controlled lab experiments, not surveys, observations, or archival studies" (Malle, 2006).

Overarching Hypothesis

People will overestimate the impact of individual ability factors on quarterback success even though situational influences are more predictive of quarterback success in the NFL, therefore committing the fundamental attribution error.

Study 1: Methods

Participants: 70 People recruited via Amazon Mechanical Turk who passed a five-item football knowledge quiz.

Based on responses from a pilot survey in which we asked participants to nominate quarterback success factors, we created a balanced menu of 10 factors: five that seemed to be more individually related and five that seemed to be more situationally related.

Individual: intelligence, athleticism, leadership ability, arm strength, and accuracy
Situational: quality of the following: coaches, pass-catchers, blockers, ball-carriers, and opposing defense faced

Study 1: Example Survey Questions*

Question 1

Please rate **all** of the following factors on how influential each is on a quarterback's passer rating in the NFL.



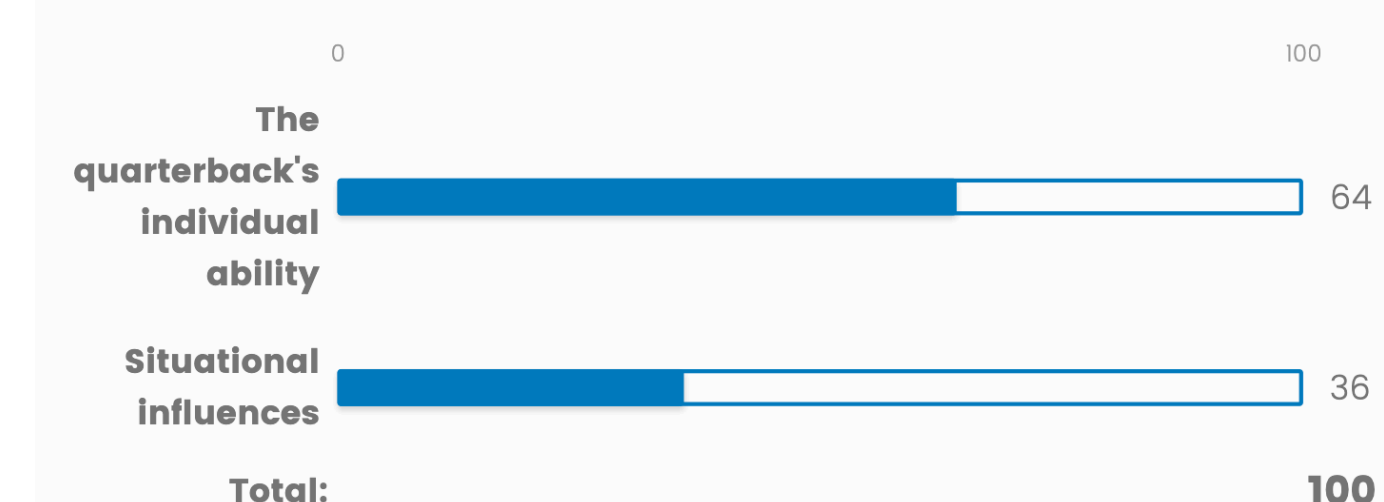
Question 2

Please indicate for **all** of the following factors to what degree each is a measure of a quarterback's individual ability or a product of his situation or environment using the slider mechanism.



Question 3

In your opinion, what percent of a quarterback's success is due to situational influences such as his coaches and teammates, and what percent is due to the quarterback's individual ability? (total must equal 100)



*Quarterback success was operationalized for this survey by passer rating, an index of passing performance that is the NFL's official quarterback success metric. This concept was explained to participants.

Study 1: Results

Question 1: Participants rated factors they considered to be individual ($M = 72.9$, $SD = 23.2$) as more influential on quarterback success than factors they considered to be situational ($M = 66.8$, $SD = 24.1$, $d = 0.48$, $p = .005$).

Question 2:

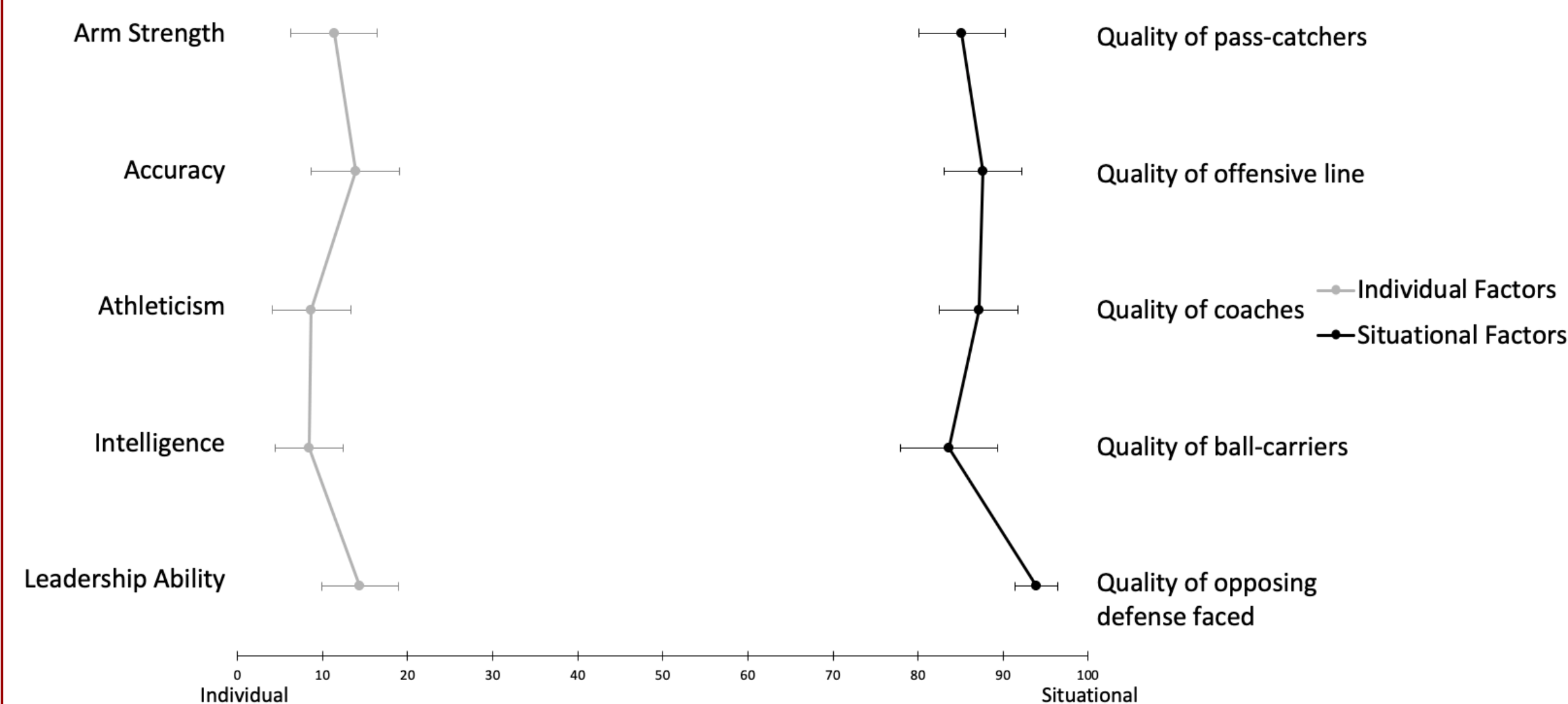


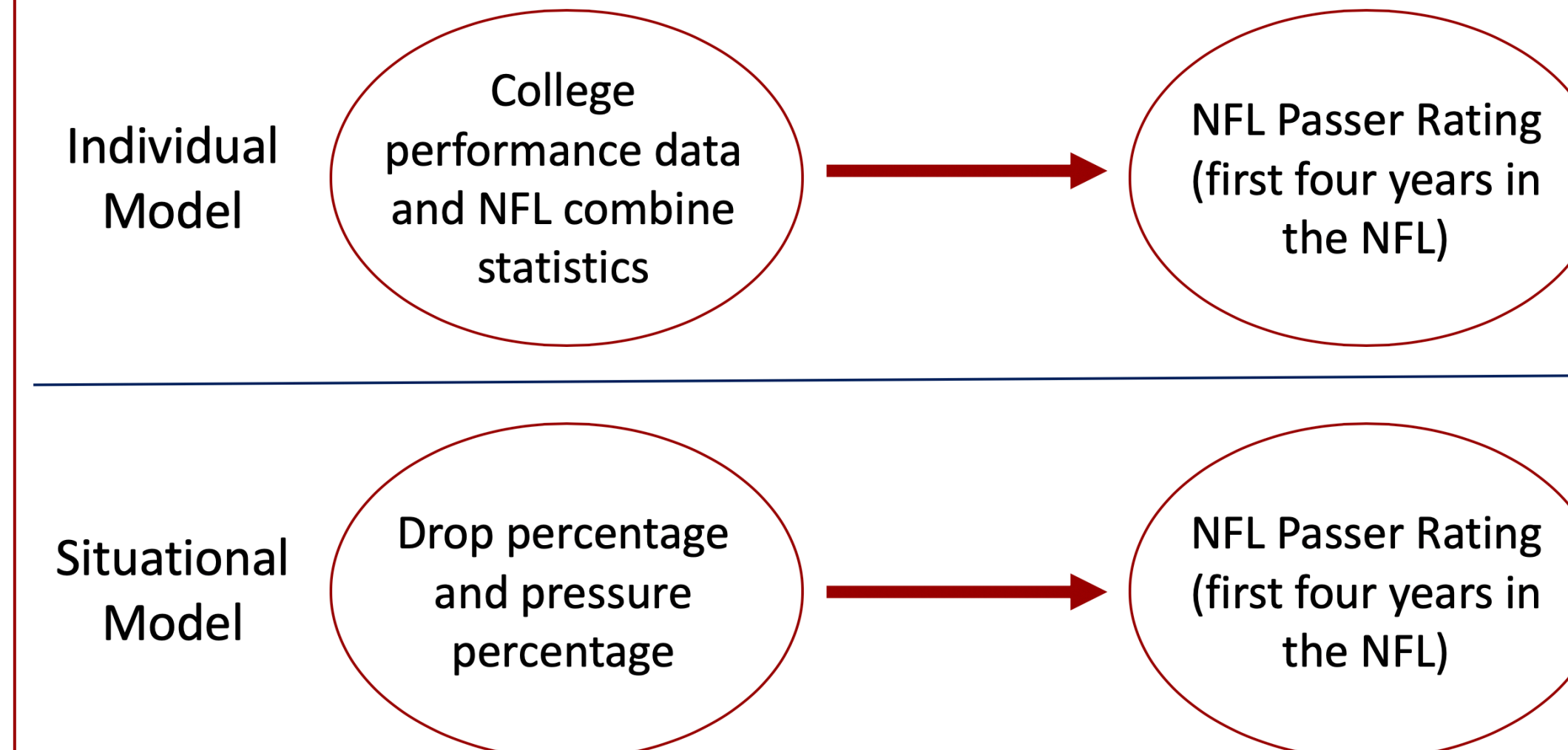
Figure 1. Mean of the degree to which each factor was indicated to be individual or situational. Error bars represent the 95% confidence interval for the mean.

Question 3: Participants attributed a higher percentage of quarterback success to individual ability ($M = 62.4\%$, $SD = 13.8\%$) than to situational influences ($M = 37.6\%$, $SD = 13.8\%$, $d = .9$, $p < .001$) when asked directly.

Study 2: Methods

Sample: 62 quarterbacks who were drafted into the NFL between 2006-2016 and attempted at least 200 pass attempts in their first four seasons in the NFL.

Prediction Models



Situational Influences

- Drop percentage: percentage of passes quarterbacks' receivers drop
- Pressure percentage: percentage of passing plays under pass-rush pressure

Study 2: Results

The best individual predictor model explained **6.8%** of the variance in NFL passer rating for the first four seasons in the NFL ($R^2 = 0.068$, $p = .0003$).

The best situational model explained **18.9%** of the variance in NFL passer rating for the first four seasons in the NFL ($R^2 = 0.189$, $p = .002$).

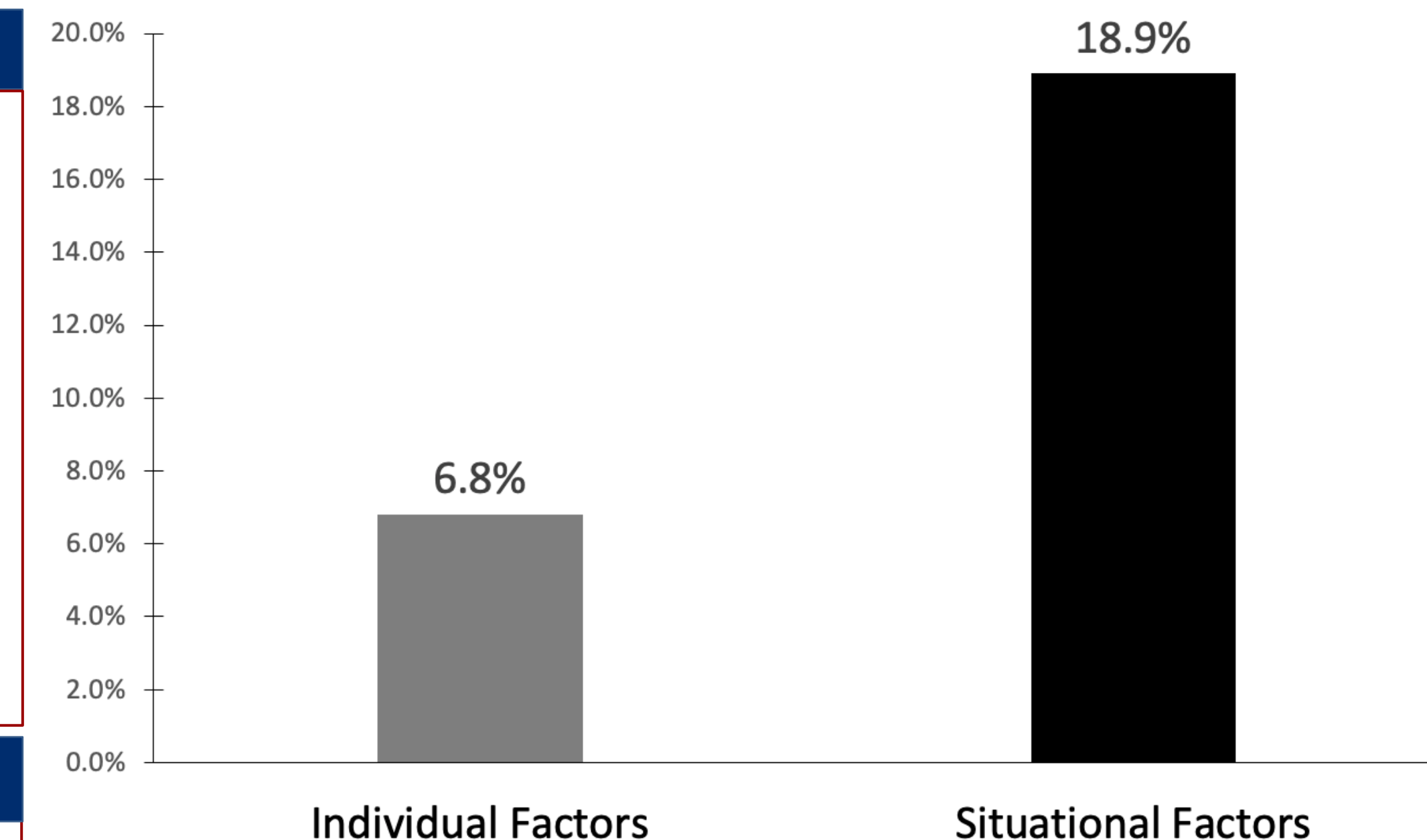


Figure 2. The percentage of variance in quarterback success for the first four years in the NFL explained by individual differences and situational influences.

Discussion and Conclusion

The robust statistical record in professional football provided a rare opportunity to study the fundamental attribution error in a naturalistic setting.

These studies show that people tend to attribute quarterback success primarily to individual ability factors, but that situational influences are more predictive.

These results indicate the influence of the fundamental attribution error in evaluations of quarterback success.

Limitations

- We did not survey expert talent evaluators, so while lay people may commit the fundamental attribution error in evaluations of quarterback success, NFL draft decision-makers may not.
- We studied only quarterbacks who have attempted passes in the NFL, which limited the extent of individual differences between quarterbacks and may have reduced the predictive capability of individual ability factors.

Future Directions

- A robust statistical record exists in nearly all professional sports, which enables researchers to study the fundamental attribution error in multiple real-world contexts.
- Interventions to reduce the fundamental attribution error in quarterback evaluation.

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References

- Berri, D. J., & Simmons, R. (2011). Catching a draft: On the process of selecting quarterbacks in the National Football League amateur draft. *Journal of Productivity Analysis*, 35(1), 37-49.
- Malle, B. F. (2006). The actor-observer asymmetry in attribution: A (surprising) meta-analysis. *Psychological Bulletin*, 132(6), 895-919.
- Quinn, K. G., Geier, M., & Berkovitz, A. (2007, June). Passing on success? Productivity outcomes for quarterbacks chosen in the 1999-2004 National Football League player entry drafts. In IASE Conference Papers (No. 0711). International Association of Sports Economists.
- Ross, L. D. (1977). The intuitive psychologist and his shortcomings: Distortions in the attribution process. *Advances in Experimental Social Psychology* (Vol. 10, pp. 173-220). Academic Press.