XINO3004

READY, SET, PLAY

INVESTIGATING THE EFFECTS OF COVID-19 ON AUSTRALIAN FOOTBALL GAMES INTENSITY

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INTRODUCTION

- The Australian Football League (AFL) takes place across Australia throughout the year.
- The 2020 season was affected by the COVID-19 pandemic which reduced the number of matches played and match length.

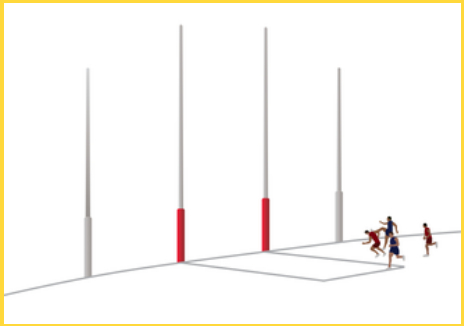
OBJECTIVES

Investigate the differences in match intensity of the COVID-19-affected season, compared to other seasons between 2018 and 2022.

Analyse team performance indicators and provide an adjustment factor for the reduced match length for future analysis.

WHAT IS AFL?

- Two teams of eighteen players on an oval-shaped field.
- Total game time of 80 minutes.
- Aim to kick the ball between goal posts.
  - 6 Points between the red posts
  - 1 Point between the other posts
- Ball can be kicked, ran with, or 'hand-balled'
  - Hand-ball: Holding the ball in one hand and punching it with the other.



AFL DURING COVID-19

- AFL began as per usual at the beginning of 2020, but only the first round was played before COVID-19 paused the season.
- Games were reduced to 64 minutes.
- Strict measure were in to prevent COVID-19 spread through the AFL roster.

VARIABLES

Total Team Scores

- The points scored in a game by one team

Performance Indicators

Disposals

- Legally getting rid of the ball, such as through a handball or kick.

Marks

- When a player catches the ball when it is kicked in the air by another player.

Tackles

- Using physical contact to prevent the opposing team getting an effective disposal.

One-Percenters

- Small extra efforts that make turnovers more likely. Such as chasing, bumping and blocking.

INVESTIGATING INTENSITY

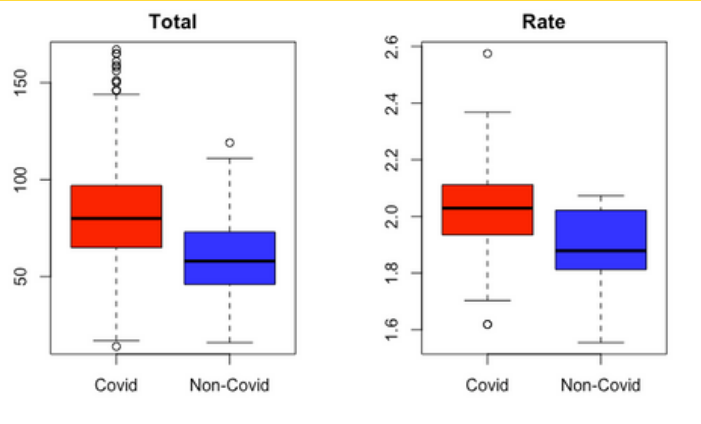
TEAM SCORES

$H_0: \mu_{\text{covid}} = \mu_{\text{non-covid}}$

$H_A: \mu_{\text{covid}} \neq \mu_{\text{non-covid}}$

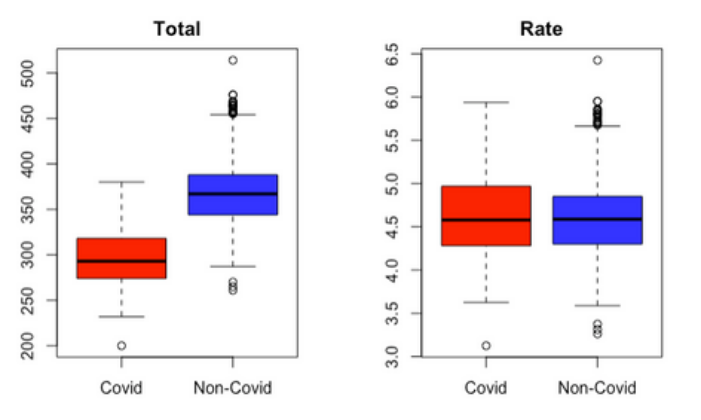
p-value: 3.66×10^{-4}

Conclusion: reject the null hypothesis in favour of the alternate.



INVESTIGATING INTENSITY

DISPOSALS



$H_0: \mu_{\text{covid}} = \mu_{\text{non-covid}}$

$H_A: \mu_{\text{covid}} \neq \mu_{\text{non-covid}}$

p-value: 3.23×10^{-1}

Conclusion: fail to reject the null hypothesis.

INVESTIGATING INTENSITY

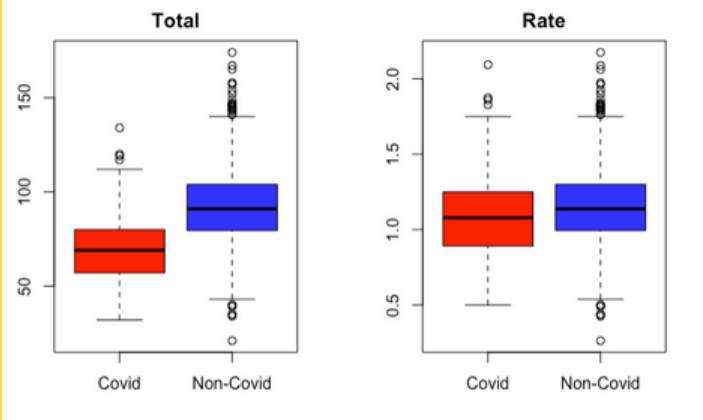
$H_0: \mu_{\text{covid}} = \mu_{\text{non-covid}}$

$H_A: \mu_{\text{covid}} \neq \mu_{\text{non-covid}}$

p-value: 8.09×10^{-5}

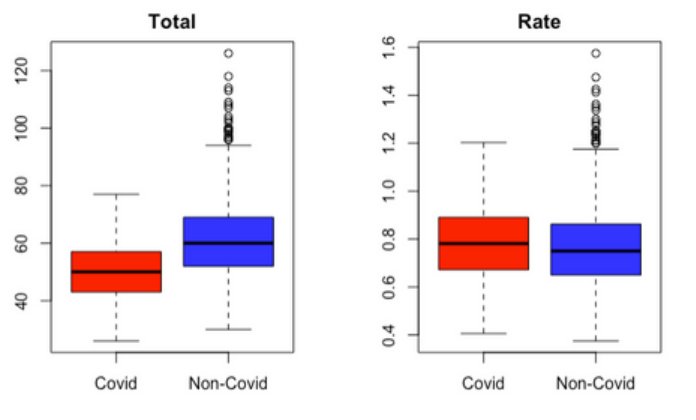
Conclusion: reject the null hypothesis in favour of the alternate.

MARKS



INVESTIGATING INTENSITY

TACKLES



$H_0: \mu_{\text{covid}} = \mu_{\text{non-covid}}$

$H_A: \mu_{\text{covid}} \neq \mu_{\text{non-covid}}$

p-value: 9.06×10^{-4}

Conclusion: reject the null hypothesis in favour of the alternate.

INVESTIGATING INTENSITY

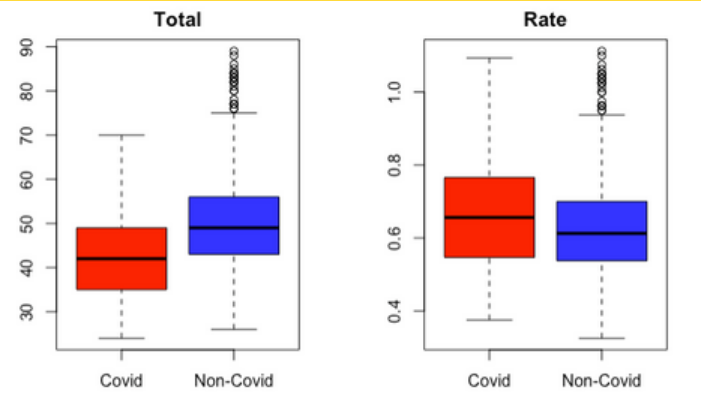
ONE PERCENTERS

$$H_0: \mu_{\text{covid}} = \mu_{\text{non-covid}}$$

$$H_A: \mu_{\text{covid}} \neq \mu_{\text{non-covid}}$$

p-value: 1.96×10^{-6}

Conclusion: reject the null hypothesis in favour of the alternate



INVESTIGATING INTENSITY - FINDINGS

- We found a statistical difference between the Covid affected season opposed to the Non Covid season.
- Of the four performance indicators, only disposals were found to have no discernible difference.
  - Tackles, marks, and one percenters were found to be statistically different.
- Further testing would be necessary in order to determine how much the Covid affected season differed.
  - Such as post-hoc analysis
- From this we can conclude that there is a discernible difference in intensity in matches affected by Covid and those that were unaffected.

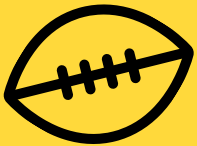
ADJUSTING INDICATORS

- Investigating adjustments that can be applied to the covid affected variables to align them with a regular season.

- Scale factor to adjust covid value to non-covid

Total score	0.74	(decrease by 26%)
One percenters	0.94	(decrease by 6%)
Disposals	0.99	(decrease by 1%)
Marks	1.05	(increase by 5%)
Tackles	0.96	(decrease by 4%)

TO CONCLUDE...



CONCLUSION

Investigating intensity

- Statistical difference between one-percenters, marks, tackles and total score in covid and non-covid conditions
- No statistical difference for disposals

Adjusting indicators

- PIs cannot be adjusted pro-rata according to game length
- Many PI rates increase for covid games, indicating an increase in intensity
- Perhaps suggesting fatigue impact on the game

THANK YOU FOR LISTENING!

REFERENCES

1. AFL International. (2022), Asian Games and AFL in Asia. https://aflinternational.com/strategic-plan/major-games/asian-games/

2. The Sporting Blog. (2022). The 10 most popular sports in Australia – The sporting blog. https://thesporting.blog/blog/10-most-popular-sports-in-australia#:~:text=1.,registered%20NRL%20players%20in%20Australia

3. AFL. (2019). History of football. https://www.afl.com.au/about-afl/history

4. M Balmer. (2020). EVERY player's home assessed, limited visitors: AFL's strict relaunch protocols. Fox Sports. https://www.foxsports.com.au/afl/afl-2020-season-restart-june-11-protocols-afl-rules- covid19-testing-coronavirus/news-story/a76e0895aac8c955ad677cd6366d481a

5. AFL. (2020). Explainer: What changes have been made to footy for 2020? https://www.afl.com.au/news/440196/explainer-what-changes-have-been-made-to-footy- for-2020

6. AFL Asia. (2022). About AFL Asia. https://aflasia.com/about/

7. Ozstudies. (2023). AFL beginners guide: Australian rules football | Study in Australia. OzStudies. https://www.ozstudies.com/blog/study-australia/afl-australian-rules-football-explained- guide

8. Study in Australia. (2020). AFL for beginners: A guide for new arrivals to Australia. https://www.studiesinaustralia.com/Blog/about-australia/afl-for-beginners-a-guide-for- new-arrivals-to-australia