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The Way of the Fight: An Analysis of MMA Judging

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Abstract

Judging is a controversial but rarely studied topic in Mixed Martial Arts (MMA). Most MMA scholarship focuses on health (e.g., head trauma) and training (e.g., dieting, strength, and conditioning), with relatively few exploring matters of judging even though judging is of considerable importance to the appeal and integrity of the sport. Thus, the purpose of this study is to fill this research void by analyzing data on MMA judging decisions to determine if MMA judging follows the criteria approved by the ABC MMA Rules Committee. To evaluate MMA judging, Fight-Metric data were gathered from a period spanning November 17, 2000 to December 19, 2015. Fight promotions used in the data include the UFC, Strikeforce, and WEC. Logit regressions were used to evaluate the research hypotheses. Several key results stemmed from the analysis, including takedowns landed, knockdowns, significant strikes landed, damage, and control significantly increasingly the likelihood of a fighter winning rounds. However, when a fight is close, judges favor striking as a measure of aggression rather than submission and wrestling attempts. Overall, despite some bias in favor of striking over wrestling and Jiu-Jitsu, MMA judges appear to mostly follow the evaluation criteria provided to them.

Keywords: *MMA judging, logistic regressions*

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Introduction

One of the most debated issues in Mixed Martial Arts (MMA) is judging (Kidd, 2013). Critics of MMA judging typically suggest that judges are not educated on how to properly evaluate an MMA contest given the large amount of technical aspects involved. Others argue the problem is with uneducated, casual fans and media pundits who complain and criticize judges without fully understanding MMA or how it is evaluated. Both positions have valid points, but beyond anecdotal observations, researchers have yet to examine whether MMA judges are making appropriate (rule-based) judging decisions. Thus, the purpose of this manuscript is to analyze data on MMA judging decisions to determine if MMA judging follows the criteria approved by the Association of Boxing Commissions and Combative Sports (ABC) MMA Rules Committee. The results from this analysis should improve understanding of MMA judging, particularly as it pertains to whether MMA judges are following the provided rule set or need more training to better evaluate MMA contests.

Literature Review

A limitation of MMA research is the majority of MMA scholarship comes from an injury (e.g., MMA brain injury) or sports science perspective (e.g., strength and conditioning of MMA athletes) as opposed to a data analytics perspective. For example, Hutchison et al. (2014) explored the risk factors of knockouts, whereas Shin et al. (2014) studied the detection of brain injuries in boxers and MMA fighters. Consider also Crighton et al. (2016), who examined the potential harmful effects of weight cutting in MMA. Though interesting and helpful, such lines of inquiry are focused on only several avenues of MMA research. Areas such as governance, rules, and judging are largely unexplored. However, with the advent of FightMetric in 2007, research avenues focused on areas other than health and physical fitness can now be examined.

FightMetric gathers data from MMA fights, from which data analytic pieces can be written. Indeed, one of the first papers published using MMA fight analytics was by Lachlan et al. (2017). They determined that different types of MMA actions, such as striking and wrestling, lead to wins via a decision tree analysis. Specifically, the actions to show the greatest impact on winning included the amount of strikes landed per minute, total strikes attempted per minute, significant strikes landed per minute, significant strike accuracy, significant ground strikes landed per minute, and offensive passes.

Though analytics has seen explosive growths in numerous sport leagues, especially Major League Baseball (MLB), the National Football League (NFL), and the National Basketball Association (NBA), MMA-based research using analytics is in a nascent stage of development. In short, few papers exist. Along with the paper by Lachlan et al. (2017), an additional example comes by way of research by Gift (2018), which investigated various types of bias and favoritism present in the performance evaluations of judges for MMA events. Gift's findings include bias

toward larger betting favorites, those with insurmountable leads, and the fighter who won the previous round.

The current study builds off Gift's work, but also differentiates itself by examining whether judges are following the criteria that is set out by the ABC MMA Rules Committee (see ABC Committee Report on Unified Rules for MMA) as opposed to specific biases that judges hold. Accordingly, the criteria document used in Gift's (2018) study was adopted for the purposes of this study. The document includes several categories for judges to consider. The category of "Effective Striking/Grappling" is considered the priority of round assessments. Effective striking is judged by determining the impact and number of legal strikes landed. Heavier strikes that have a visible impact on the opponent will be given more weight than the number of strikes landed. If neither fighter shows an advantage in impact of strikes, the number of strikes will determine the most effective striker. Effective grappling is judged by considering the amount of successful executions of a legal takedown, reversals, and submission attempts.

The next category is "Effective Aggressiveness," which is moving forward and scoring with a legal technique or attacking from the guard with threatening submissions. This category should not be considered unless the judge does not see any advantage in the "Effective Striking/Grappling" realm. Finally, "Cage/Ring Control" should only be needed when all other criteria are 100% equal for both competitors. This criterion describes how a fighter dictates the pace, place, and position of the contest.

In sum, the criteria that judges must follow include effective striking, effective grappling, control of the ring/fighting area, and effective aggressiveness and defense. With that information in mind, the current study uses data from FightMetric to determine if MMA judges are following these four criteria via analysis of round-by-round scoring decisions. In accordance with how each category is supposed to be weighted by judges, three hypotheses are put forth:

Hypothesis 1: Fighters will win round who have a clear scoring advantage in both striking and grappling.

Hypothesis 2: A split decision for rounds will result when there is little to no advantage between the fighters in terms of striking and grappling.

Hypothesis 3: Aggression and control will be greater for the winning fighter when striking and grappling are comparable between fighters.

Methodology

Data were obtained from FightMetric. The data set starts from November 17, 2000, to December 19, 2015. The data contains MMA fights from the UFC, Strikeforce, and WEC fight promotions. Taking out contests that do not end by decision, the number of decision-based contests found in the data is 3,742. The number of split decision contests are 776. The data includes totals and the components that

make up the totals. For example, total significant strikes are a variable. That variable can be divided into the types of significant strikes that make up the total, such as significant kicking, body, head, clinch, and ground strikes. Takedowns landed are broken into slams and non-slams or offensive passes. Submissions attempted are divided into chokes and locks. Grappling advancing is broken into advance to side control, half-guard, back, and mount control. Control time is broken into the amount of time holding a dominant position in guard, back, mount, and clinch control. A summary of the variables used in the analysis are included in Table 1. To account for aggression, the paper uses the total number of attempted strikes and takedowns.

Table 1

FightMetric Data Variables

Striking	Grappling	Aggression	Control
KnockDowns	TakedownsLanded	AdvanceToHalfGuard	Clinch Time
TotalStrikesLanded	TakedownsSlams	AdvanceToSide	Guard Time
SigStrikesLanded	OffensivePasses	Strikes Attempted	HalfGuard Time
SigHeadStrikesLanded	SubmissionsAttempted	Takedowns Attempted	Side Time
SigBodyStrikesLanded	SubmissionChokesAttmepted	AdvanceToBack	Mount Time
SigLegStrikesLanded	SubmissionLocksAttempted	Submissions Attempted	Back Time
SigClinchStrikesLanded			
SigGroundStrikesLanded			

The main variables of interest serving as a proxy for judging criteria include the relative number of significant strikes (effective striking), wrestling and submission attempts (grappling), advancing and number of strike and takedown attempts (aggression), and the amount of time one opponent is in control of the other opponent (control of the octagon or ring). Striking variables include all forms, such as punches, kicks, ground strikes, clinch strikes, and body strikes (to name a few). Grappling includes takedowns and submission attempts. Control and aggression includes advancing to more dominant positions on the ground, the number of strikes and grappling attempts, and time of control both on the feet and the ground.

The variables were calculated as a relative difference using logit regression techniques. That means the dependent variable is a one or zero, with a one reflecting a win and zero reflecting a loss. The independent variables were calculated as the relative difference between the two fighters for the variable of interest, such as the difference between significant strikes between fighter $_i$ and fighter $_j$.

A logit regression was used to evaluate the three hypotheses because it is a natural fit for a winner/loser type of event. The logit regression uses a one for the winner of the round and the opponent receives a zero. The logit regression calculates the log odds of each relative variable increasing the chances of earning a win by round. All regressions use relative variable referring to the difference in the variables between the opponents. For example, with the variable Knockdowns$_{ij,n,}$ it

is the relative difference in knockdowns between fighter $_i$ and fighter $_j$ in round $_n$. Therefore, if fighter $_i$ had two knockdowns in round 1 and fighter $_j$ had one knockdown in round 1, the relative difference is positive one for fighter $_i$ and negative one for fighter $_j$. All variables are relative difference variables.

The first regression (regression one) tests hypothesis 1 by using the relative difference variables for knockdowns, significant strikes, wrestling, and Jiu Jitsu controlling for damage and octagon control. A positive significant coefficient on any of these variables indicates that the greater relative difference in either striking or grappling increases the log odds of a judge scoring the round to that fighter. Regressions two and three break down significant strikes and grappling into specific types of striking and grappling for further insight.

Hypothesis 2 was tested by running the first regression again but using split-decision data only, taking out majority decision data. The logic for this decision being that split-decision wins are close and therefore judges should follow the priority that striking, and grappling should take a back seat and control and aggression should become a higher priority. Thus, the goal was to test whether the coefficients on striking and grappling were not statistically significant using the first regression model, but with only split-decision data. This would indicate judges are using the priority order.

Lastly, regression four was used to test hypothesis 3 (i.e., when striking and grappling are close, priority is given to aggression and control). To proxy for aggression and control, regression four replaces the number of significant strikes and takedowns with the number of striking and grappling attempts. Attempts are used as a proxy for aggression and control. Also examined were the coefficients on attempts. A positive statistically significant coefficient on attempts indicates the judges are judging based on the priority list put forth by the ABC Commission.

Data Analysis

The first stage regression determines if effective striking, grappling, and control impact the log odds of winning a contest for all decision contests,

$$\text{Logit}_{ij,n} = \beta0 + \beta1\text{Knockdowns}_{ij,n} + \beta2\text{SigX}_{ij,n} + \beta3\text{T akedowns}_{ij,n} + \beta4\text{SubAttempts}_{ij,n} + \beta5\text{Damage}_{ij,n} + \beta6\text{Control}_{ij,n} + \text{E}_{ij,n}$$

(1)

where $\text{Logit}_{ij,n}$ equals one if fighter $_i$ wins round $_n$ and zero if fighter $_i$ losses round $_n$ against fighter $_j$, $\text{Knockdowns}_{ij,n}$ equals the relative number of times fighter $_i$ knocked down fighter $_j$ in round $_n$, $\text{SigX}_{ij,n}$ equals the relative number of total significant strikes thrown by fighter $_i$ compared to fighter $_j$ in round $_n$, $\text{Takedowns}_{ij,n}$ equals the relative total number of takedowns landed for fighter $_i$ compared to fighter $_j$ during round $_n$, $\text{SubAttempts}_{ij,n}$ equals the relative number of submission attempts attempted by fighter $_i$ relative to fighter $_j$ during round $_n$, $\text{Damage}_{ij,n}$ equals one if fighter $_i$ inflicted relatively more damage on fighter $_j$ and zero otherwise, and $\text{Control}_{ij,n}$ is the relative amount of time in seconds that fighter $_i$ is a controlling position against fighter $_j$ during round $_n$. Lastly, $\text{E}_{ij,n}$ is the residual error term.

The next regression breaks down significant strikes into its components while maintaining the other variables in regression one,

$$\text{Logit}_{ij,n} = \beta 0 + \beta 1 \text{Knockdowns}_{ij,n} + \beta 2 \text{SigHeadX}_{ij,n} + \beta 3 \text{SigBodyX}_{ij,j} + \beta 4 \text{SigLegX}_{ij,n}$$
$$+ \beta 5 \text{SigClinchX}_{ij,n} + \beta 6 \text{SigGroundX}_{ij,n} + \beta 7 \text{T akedowns}_{ij,n}$$
$$+ \beta 8 \text{SubAttempts}_{ij,n} + \beta 9 \text{Damage}_{ij,n} + \beta 10 \text{Control}_{ij,n} + E_{ij,j}$$

(2)

where $\text{SigHead}_{ij,n}$ is the relative number of significant head strikes of fighter $_i$ on fighter $_j$ in contest $_n$, $\text{SigBodyX}_{ij,n}$ is the relative number of significant body strikes between fighter $_i$ and $_j$, $\text{SigLegX}_{ij,n}$ is the relative number of significant leg strikes between figther $_i$ and $_j$, $\text{SigClinchX}_{ij,n}$ is the relative number of significant clinch strikes between fighter $_i$ and $_j$, and $\text{SigGroundX}_{ij,n}$ is the relative number of significant ground strikes between fighter $_i$ and j in round $_n$.

The following regression breaks down the components of takedowns landed and submission attempts into slams, passes, chokes, and locks,

$$\text{Logit}_{ij,n} = \beta 0 + \beta 1 \text{Knockdowns}_{ij,n} + \beta 2 \text{SigStrikes}_{ij,n} + \beta 3 \text{Slams}_{ij,n} + \beta 4 \text{Pass}_{ij,n}$$
$$+ \beta 5 \text{Chokes}_{ij,n} + \beta 6 \text{Locks}_{ij,n} + \beta 7 \text{Damage}_{ij,n} + \beta 8 \text{Control}_{ij,n} + E_{ij,n}$$

(3)

where $\text{Slams}_{ij,n}$ is the relative number of slam takedowns between fighter $_i$ and $_j$, and $\text{Pass}_{ij,n}$ is the relative number of offensive passes which is essentially a takedown to the ground that is not a slam. Submission attempts are broken into two kinds, chokes and locks where $\text{Chokes}_{ij,n}$ is the relative number of submission choke attempts between fighter $_i$ and $_j$ and $\text{Locks}_{ij,n}$ equals the relative number of submission locks attempts such as leg or arm locks between fighter $_i$ and $_j$.

Further, in terms of split decisions, regression one was run again as a split decision test. All variables should be not statistically significant if the judges followed the criteria besides the control variable. Thus, only aggression and control were modeled where aggression is proxied using attempts versus landed. Submissions landed results in a fighter losing by submission; therefore, the submission variable is always attempted. Otherwise, striking and takedowns are changed from relative landed to relative attempted,

$$\text{Logit}_{ij,n} = \beta 0 + \beta 1 \text{SigX A}_{ij,n} + \beta 3 \text{Takedowns A}_{ij,n} + \beta 4 \text{SubAttempts}_{ij,n} + \beta 5 \text{Damage}_{ij,n} +$$
$$\beta 6 \text{Controlij,n} + E_{ij,n,}$$

(4)

where $\text{SigX A}_{ij,n}$ is the relative number of attempted strikes thrown by fighter $_i$ relative to fighter $_j$ in round $_n$ and $\text{Takedowns A}_{ij,n}$ is the relative number of attempted takedowns thrown by figher $_i$ relative to fighter $_j$ in round $_n$.

Results

Summary statistics of the data sample using all decision data are provided in Table 2. The averages across all winning and losing fighters are provided in Table 3. Winning fighters all have higher numbers than the losing fighters, except for the submission attempt variable. Judges appear to be valuing the number of strikes landed and attempted, takedowns landed, and control of the octagon; however, per the data, submission attempts are not valued. Additionally, in terms of split decisions, Table 4 shows the averages across all split decision contests segmented between winning and losing fighters. The numbers are closer together for split decisions. Even so, winning fighters edge out losing fighters in all categories except for submissions attempted.

Table 2

Summary Statistics

Variable	Obs	Mean	Stdev	Min	Max
Knockdowns	10,410	0.0379	0.203	0	3
Strikes Landed	10,410	23.625	15.517	0	168
Sig Strikes Landed	10,410	13.786	10.054	0	91
Takedowns Landed	10,410	0.555	0.861	0	9
Submissions	10,410	0.177	0.518	0	10
Damage	10,410	0.0634	0.244	0	1

Note: Table 2 is a summary table of the main variables used for all decisions.

Table 3

Win vs. Loss Averages: All Decisions

Variable	Win	Loss
KnockDowns	0.157	0.074
SigXLanded	17.751	11.788
SigXAttempted	113.640	91.252
TakedownsLanded	1.134	0.552
TakedownsAttempted	2.489	2.504
SubAttempts	0.235	0.296
ControlTime	0.001	0.000

Note: Table 3 displays the average number for several variables that proxy striking, grappling, aggression, and control between the fighters that won and lost for all decision contests.

Hypothesis 1

Results provided in Table 5 indicate that the first regression test revealed that the relative difference in striking, control time, damage, and takedowns all increase the log odds of winning a round. The relative difference in submission attempts variable is not statistically significant in increasing the log odds of winning a round. That is, an incremental advantage of one knockdown in a round, increases the chances of winning the round by 52%, 1-exp(0.421) = 0.52, one incre-

Table 4

Win vs. Loss Averages: Split Decisions

Variable	Win	Loss
KnockDowns	0.13	0.10
SigXLanded	17.253	15.42
SigCttempted	114.92	109.49
TakedownLanded	1.01	0.80
TakedownsAttempted	1.77	1.74
SubsAttempted	0.20	0.38
Control	0.0007	0.0006

Note. Table 4 displays the average number for several variables that proxy striking, grappling, aggression and control between the fighters that won and lost for all split decision contests.

mental significant strike landed more than their opponent increases the odds of winning the round by 7.46%, and an incremental takedown in the round increases the chances of winning the round by 28.8%. Overall, knockdowns and takedowns have the greatest odds of winning a round in the eyes of the judges. Submission attempts have minimal influence on how judges score fights.

Table 5

Regression 1: All Decision Outcomes

Variable	Coef.	Std. Err.
Knockdowns	0.421**	0.136
SigX	0.072**	0.003
Takedowns	0.253**	0.032
SubsAttempted	0.075	0.046
Total Control	873.096**	33.114
Damage	0.425**	0.097
Constant	-1.881**	0.052

Note. Table 5 displays the regression results from regression 1 for the entire contest using all decision outcomes. *significant at 5%; **significant at 1%.

The results provided in Table 6 indicate that the regression two results show that all relative difference in significant strikes except for significant ground strikes improve the log odds of winning a round. Significant body and head strikes have the same probability of increasing the chances of winning a round, with significant leg strikes leading to slightly greater probability of winning a round at 9% versus 7.5%.

Lastly, the results in Table 7 display the regression three results, which divides the submission attempts variable into chokes and locks. The results reveal that the relative difference in choke and lock attempts do not improve the log odds of winning rounds. Only the wrestling takedowns improved the log odds of winning the round, with a slam having the highest impact, increasing the log odds of winning

Table 6

Regression 2: All Decision Outcomes

Variable	Coef.	Std. Err.
Knockdowns	0.430∗∗	0.137
SigHeadX	0.073∗∗	0.004
SigBodyX	0.074∗∗	0.010
SigLegX	0.094∗∗	0.010
SigClinchX	-0.024∗∗	0.008
SigGroundX	0.000	0.010
Takedowns	0.249∗∗	0.033
SubsAttempted	0.081†	0.035
ControlTime	890.058∗∗	39.522
Damage	0.449∗∗	0.098
Constant	-1.893∗∗	0.054

Note. Table 6 displays the regression results from regression 1 for the entire contest using all decision outcomes. *significant at 5%; **significant at 1%.

Table 7

Regression 3: All Decision Outcomes

Variable	Coef.	Std. Err.
Knockdowns	0.335∗∗	0.135
SigX	0.0722∗∗	0.003
Slams	0.350∗∗	0.104
OffensivePasses	0.197∗∗	0.034
SubsChokes	0.036	0.055
SubsLocks	-0.013	0.089
ControlTime	876.77∗∗	34.854
Damage	0.456∗∗	0.097
Constant	-1.834∗∗	0.052

Note. Table 7 displays the regression results from regression 1 for the entire contest using all decision outcomes. *significant at 5%; **significant at 1%.

a round by 42%. Offensive passes, understood as takedowns that are not slams, increase the log odds of winning a round by 22%. In sum, a large slam (i.e., picking an opponent off the ground and forcibly slamming the opponent into the canvas) versus a non-slam takedown has more impact on how judges evaluate fights.

Hypotheses 2 and 3

Two regression models were run for the split decision data set: one using the relative difference of landed strikes and takedowns and the other using the relative difference in attempted strikes and takedowns. The relative difference in attempted strikes and takedowns proxies for the aggression category as throwing more strikes and takedowns translates to more aggression. For close contests, striking

and takedowns landed should not be statistically significant as those categories should be ignored, and the aggression and control categories should be highlighted. The relative difference in attempts in the next regression should be statistically significant according to the criteria, as they are moved up in the priority list for the close contests.

The results provided in Table 8 indicate that the regression results for the split decision contests show the relative difference in knockdowns and takedowns landed were not statistically significant. Even so, the relative difference in significant strikes landed were still significant but at the five percent level. In other words, MMA judges, for the most part, were found to be appropriately evaluating the MMA contests. Still, the relative difference in strikes landed should not be significant, which means MMA judges still tend to place "extra weight" on striking versus other forms of combat.

Table 8

Regression 1: Spit Decision Outcomes–Landed

Variable	Coef.	Std. Err.
Knockdowns	0.179	0.251
SigStrikes	0.016**	0.004
Takedowns	0.077	0.062
SubAttempts	-0.087	0.091
Damage	0.169	0.192
Control Time	290.771**	65.579
Constant	-0.500**	0.096

Note. Table 8 displays the regression results from regression 1 for split decision outcomes. *significant at 5%; **significant at 1%.

The relative difference in significant strikes attempted and control time were both statistically significant. This result, which is presented in Table 9, highlights that the judges do view striking aggression and control numbers appropriately when evaluating close contests. However, judges did not put any weight on submission or takedown attempts as a factor for aggression. Judges only viewed striking attempts as aggression; they did not view grappling attempts as aggression.

Discussion

The results of this study provide several important contributions to the study and practice of MMA. Of note, the results provide evidence of gray areas within MMA judging. Hypothesis 1, for example, was mostly supported because fight winners have a clear scoring advantage in both relative striking and grappling when using all decision data. Judges are using the established fight criteria appropriately for all decision outcomes, except for submission attempts. Submission attempts are considered grappling, which is supposed to be top priority with striking, but that was not always followed. Thus, MMA judges appear to be mostly

Table 9

Regression 4: Spit Decision Outcomes–Attempted

Variable	Coef.	Std. Err.
Knockdowns	0.148	0.248
SigStrikes	0.007**	0.002
Takedowns	-0.053*	0.026
SubAttempts	-0.094	0.092
Damage	0.191	0.191
Control Time	410.840**	63.327
Constant	-0.485**	0.111

Note. Table 9 displays the regression results from regression 1 for the entire contest using all decision outcomes. *significant at 5%; **significant at 1%.

(but not entirely) following the provide rules for evaluating a contest between two fighters.

Next, Hypothesis 2 is supported in terms of relative knockdowns, damage, and takedowns in that these categories should not be significant as they take fall back in priority given close contests. However, the hypothesis is rejected because judges put weight on the relative difference in significant strikes landed in close contests. Similar to the results with Hypothesis 1, with Hypothesis 2, judges appear to be following the evaluation criteria for some of categories but not all of them (i.e., putting weight on striking even though aggression and control should take priority in close contests).

Finally, Hypothesis 3 is supported in that the relative aggression and control variables are significantly greater for the winner for the split decision data. Even so, wrestling and submission attempts are not valued as aggression. Thus, hypothesis 3 is rejected given the grappling aspect of MMA where wrestling attempts are not considered aggression.

Implications

The results of this study hold several benefits for both the governance and marketing of MMA as well as for those engaged in MMA combat. In terms of governance and the marketing of MMA, fight promoters and commissions likely need to do a better job of educating their fan bases to avoid frustrated, uninformed consumers. For instance, the Ultimate Fighting Championship 247 main event, held in Houston, Texas on February 20, 2020, was between Jon Jones and Dominick Reyes. Jones, the reigning UFC Light Heavyweight Champion at the time, defeated Reyes via a unanimous decision win. The fight was highly controversial with many fans and commentators believing Reyes had finally dethroned the longtime champion (Pattle, 2020). The fight was very close regarding striking and grappling. What is more, Dominick Reyes appeared to cause more damage. However, Jon Jones controlled the octagon more and pushed the pace more aggressively.

Given the rule set about a close contest, the judges should put more weight on aggression and control. Thus, though the contest was controversial, Jon Jones did not "rob" Reyes of win. Per the rules, Jones had the advantage. Accordingly, as the sport of MMA continues to grow, it is imperative that the MMA commissions fully educate the audience on how MMA contests are scored when contests are close.

Additionally, in terms of advice for fighters, the results showcase how judges tend to view striking versus Jiu-Jitsu. Namely, though the martial art of Jiu-Jitsu is a staple of MMA, it appears to not play a significant role in judges' decisions. Also, in terms of aggression, judges favor striking offense more so than wrestling and submission attempts. This favoritism may stem in large part from the fact that many MMA judges come from boxing backgrounds instead of MMA backgrounds. Until judges become better educated about the nuances of MMA contests, striking bias will likely persist. Thus, with than in mind, wrestling and Jiu-Jitsu focused fighters need to fight in a way that, should they fail to get a submission or knock out but still dominated their opponent, the judges will not award the win to their opponent. That is, fight in a way that doesn't compromise the athletes' preferred style while also taking into consideration potential bias against a fighter whose strength is not striking.

Conclusion

This study sought to better inform the debate about whether MMA judges effectively score MMA contests according to the official criteria. The results are not black and white. Per the FightMetric data, judges appear to be following fight evaluation criteria because relative differences in takedowns landed, knockdowns, significant strikes landed, damage, and control increased the log odds of winning rounds. However, in close contests, judges are putting less priority on grappling and more priority on aggression. Further, judges are placing minimal weight on submission and wrestling attempts when it comes to evaluating aggression. Striking is favored when it comes to evaluating aggression. Yet, even with these areas of concern, judges are mostly following the evaluation criteria provided to them. Be that as it may, given the limited understanding many boxing-based judges seemingly possess about wrestling and submissions, more education on the matter is highly recommended.

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