Rivalry in Combat Sports: An Analysis of Antecedents and Market Demand

Lamar Reams, Old Dominion University
Terry Eddy, University of Arkansas

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Across the globe, rivalry contests permeate sport with evidence to suggest these competitions have a significant impact on live fan attendance (Depken, 2000; Paul, Weinbach, & Melvin, 2004). Factors that contribute to rivalries are dynamic and complex (Benkwitz & Molnar, 2012), indicated by the lack of a universal definition and operationalization of the concept in previous research (Kilduff, 2014; Tyler & Cobbs, 2015). In an effort to bring solidarity to the study of rivalry, recent studies have identified antecedents to these adversarial relationships, including: similarities between individuals or organizations, repeated competitions, evenly matched contests (Kilduff, Elfenbein, & Staw, 2010), conflict, a relevant peer, and inherent bias (Tyler & Cobbs, 2015). Much of the analyses in sport management have been cross-sectional in nature, focusing on fans’ perceptions of rivalries in team sports, specifically intercollegiate football and basketball (cf. Havard et al., 2013; Havard & Eddy, 2013; Tyler & Cobbs, 2015). Contrarily, very little is known about the impact of rivalries on televised demand for individual sports - an economic and marketing outcome in the 21st century that is becoming of greater importance than live attendance (Buraimo, 2007; Forrest, Simmons, & Buraimo, 2005).

In no other sport setting does this resonate more than with Ultimate Fighting Championship (UFC), a professional mixed martial arts (MMA) organization that was purchased in 2016 for $4 billion (the largest transaction in sport history), and relies on pay-per-view (PPV) sales as a primary revenue stream (Isidore, 2016; Tainsky, Salaga, & Santos, 2012). Tainsky et al. (2012) and Watanabe (2012; 2015) have both examined UFC PPV buys, but neither placed a specific focus on rivalry determinants. Demand models examining rivalries in team sports have primarily assessed their impact as a binary variable (cf. Beckman, Cai, Esrock, & Lemke, 2011; Turner, 2013), with researchers deciding a priori which games in a team’s season are against rival opponents. A limitation of the latter studies is the oversight of the multi-faceted structure of rivalries, and the unique nature of individual sports, where fans’ consumer behavior can be influenced by the characteristics of individual athletes (McCutcheon, Lange, & Houran, 2002).

Economic demand theory posits that PPV buys are a direct indicator of demand, where explanatory determinants can be categorized into five groups: consumer preferences, price, quality of viewing, characteristics of the contest, and supply capacity (Borland & Macdonald, 2003). Given the gap in the literature pertaining to sport rivalry and its influence on sport’s most salient marketing outcome, the purpose of this research was to operationalize and assess its impact in a dynamic, individual sport setting.

Method
The sampling frame for the study was all numbered PPV events from 2007 to 2016 (UFC 72 through UFC 202). Consistent with previous UFC models, data were collected from multiple websites; namely, ufc.com, tapology.com, and sherdog.com. Fifteen independent variables were selected to operationalize three antecedents of rivalry from the literature, namely similarity, repeated competition, and competitiveness (Kilduff et al., 2010). The fighter similarity variables were main/co-main career winning percentage, main/co-main fighting style (as a ratio of strikes to takedowns plus submissions), main/co-main salary earned for the fight, and main/co-main country of origin. Repeated competition was operationalized by main/co-main event rematches. Finally, the competitiveness variables were main/co-main winning percentage from their last three fights, main/co-main fighter ranks, and event poster style (dummy variable coded 1 if the event poster only featured two fighters from the card, 0 if it featured more than two fighters – a proxy for the extent to which a rivalry was used to promote the event). Many of the rivalry-related variables were expressed as differences between the competitors (e.g., difference in competitors’ rankings, salaries earned, winning percentages, etc.).

Four control variables from the literature (main event odds, co-main event odds, presence of a title match, and number of current/former UFC champions on the card), plus monthly trend and price variables, were all included in

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the model. PPV buys are count data, and were somewhat positively skewed, overdispersed and non-normal (Komolgorov-Smirnov test was significant); therefore, a negative binomial regression was conducted using maximum likelihood estimation with the identity link function. A significant, Augmented Dickey-Fuller unit root test indicated PPV buys were stationary (p < .001), supporting estimations across the time series.

Results
Preliminary results indicate the model fit the data well, as the deviance value to degrees of freedom ratio was 1.256 and the omnibus likelihood ratio chi-square was significant (p < .001). Seven of the fifteen rivalry-related variables were statistically significant (p < .001). Two competitiveness variables for the main event were significant – the smaller the difference in rank (β = -7541.85; p = .006) and recent winning percentage (β = -3,496.19; p < .001), the greater the PPV buys. Additionally, when the event poster featured only two fighters, an additional 162,941 PPV buys (p < .000) were generated (approximately $8.96 million in revenue).

The largest single effect among all the variables came with repeated competition, namely the presence of a rematch in the co-main event (p = .005), which generated an additional 238,145 PPV buys (approximately $13.1 million in revenue). The significant similarity variables were main event salary difference (β = .375; p = .013), co-main event salary difference (β = .490, p = .042), and main event career winning percentage difference (β = 10,117.97; p = .001).

Discussion
Our analysis of Kilduff et al.’s (2010) antecedents to rivalry indicate significant similarity variables among conflicting fighters in the main event, particularly in terms of winning percentage and salary. This finding could speak to a possible underdog effect in the heavily marketed main events, where fans may be more inclined to purchase an event if they perceive one individual is disadvantaged in some manner (Thomson, 2006; Vandello, Goldschmeid, & Richards, 2007). Different countries of origin and fighting styles among the main and co-main event fighters were not significant, meaning demand for these events is less dependent on these non-performance based contest characteristics. This finding is in contrast to Tyler and Cobbs (2015), where geographical proximity and playing style similarity were significant factors.

It appeared that the perception of a more competitive fight created higher PPV buys, particularly if both fighters had entered into the main-event matchup on a consecutive winning streak, and were closely ranked. A rematch in the main event was not a significant predictor of PPV buys, possibly because headlining fights are usually desirable matchups for a number of factors, whereas co-main events that are a rematch may add intrigue to a fight card that might not gain as much attention if there were no history between the fighters. Marketing the event as a rivalry via the poster (rather than a complete card) also had a positive effect on PPV buys. Although it seems unlikely that the event poster itself is enough to push viewership, the style used on the poster tends to be a reflection of the overall marketing strategy that the UFC uses for each event. Based on the relationship of these findings to the literature, additional conceptual and practical rivalry implications will be included in the presentation.