Demand for Individual Sports: Estimating Pay-Per-View Buyrates for the Ultimate Fighting Championship

Scott Tainsky, University of Illinois
Steven Salaga, University of Michigan
Carla Santos, University of Illinois

Economics Abstract 2011-011

Introduction:
Demand estimation studies in sport have attracted considerable attention in the fields of sports marketing and economics (Borland and Macdonald, 2003). The amount of attention afforded to the topic is unsurprising given that the results have the potential to inform on decisions made by key stakeholders including sports owners, facility and firm managers, and local government officials, to name a few. One omission in the vast literature is the lack of research on individual sports within this line of inquiry. We propose that the same stakeholder needs are equally valuable in evaluating what drives the popularity of individual sports. The growth of the Ultimate Fighting Championship (UFC) is well-documented in the mass media and non-scholarly sport publications (for example, CNBC, 2009; Sports Business Journal, 2010), yet, as noted by van Bottenburg and Heilbron (2006) and echoed by others including Kim, Greenwell, Andrew, Lee and Mahony (2008), the attention placed on combat sports remains sparse.

This article uses television pay-per-view (PPV) buyrates to estimate demand for UFC events. Applying many of the same techniques and considerations used in studies of team sports, this research investigates the variability in demand attributable to fighter qualities, contest qualities, temporal effects, match location and price.

Data on UFC events were collected from mmapayout.com, sherdog.com and ufc.com. Distinctions were made between main events, co-main events (the UFC’s designation for second billing), and main card fights. Fighter qualities included win percentage, knockout percentage, submission percentage, experience in the UFC and previous exposure on the UFC reality show The Ultimate Fighter (TUF). Contest qualities noted the fight weight class, whether a given fight was a matchup of similar or differing fighter styles, whether the fight was for a championship belt or was a rematch. Temporal effects, fight card location and PPV purchase price were added and then regressed on buyrates for each UFC fight card. Multiple regression analysis was conducted to determine which factors contributed to viewership according to the equation:

$$\ln(\text{PPV buyrates}) = \beta_0 + \beta_1\text{TREND} + \beta_2\text{HOLIDAYWKND} + \beta_3\text{MAINBOTHTUF} + \beta_4\text{MAINBOTHTFUWIN} + $$
$$\beta_5\text{COBOTHTFU} + \beta_6\text{COTITLEIND} + \beta_7\text{MAINTITLEWW} + \beta_8\text{MAINTITLELM} +$$
$$\beta_9\text{MAINTITLELHW} + \beta_{10}\text{MAINTITLEHW} + \epsilon$$

TREND is a linear time variable and HOLIDAYWKND is an indicator representing whether the UFC event was held on a holiday weekend. MAINBOTHTFU and COBOTHTFU are ordinal variables representing the number of main event fighters and co-main event fighters in a given match that appeared on TUF. MAINBOTHTFUWIN is an ordinal variable representing the number of main event fighters who won their respective weight class on TUF. COTITLEIND is an indicator variable measuring whether the co-main event fight was for a title in any weight class. MAINTITLELM, MAINTITLEWW, MAINTITLELHW and MAINTITLEHW are all indicator variables coded equal to one if the main event fight was a title fight in its respective weight class.

The specified model produced a R² value of .6002 and was significant the .01 level. Six of the eleven parameters were significant at .01 with one additional covariate significant at .05. Results show a strong positive relationship between the heavyweight title fight indicator variable and PPV purchases. The model predicts a 101% increase in PPV buys when the main event is a heavyweight title fight as opposed to a lightweight title fight, which is omitted from the estimation and serves as the reference level. UFC events that are held on holiday weekends are associated with a 51.2% increase in PPV buys. The TREND variable is also significant at the .01 level and is positively associated with PPV purchases, suggesting that all else equal demand for UFC PPV events has increased over the time period examined. Interestingly, this model does not produce a significant relationship between main events and co-main events featuring TUF participants or winners and PPV purchases. In fact, results show negative but non-significant relationships in both the MAINBOTHTFUWIN and COBOTHTFU variables. In addition, preliminary modeling results show that beyond the COTITLEIND indicator variable, co-main event fighter attributes do not significantly influence PPV buyrates. Likewise, matchups pitting both similar and competing fighting styles are not significant in determining the PPV purchases for both main and co-main event contests.
The results suggest that demand increases for UFC PPV events when a heavyweight title fight is the main attraction. Both light heavyweight and welterweight main event title fights are also significant at .01 and are positively linked to PPV purchases. However, their impact on PPV buyrates is not as pronounced as what is seen in the heavyweight division. This may be a case of consumer preference for title fights in the heavyweight class, more aggressive promotion and marketing of main event heavyweight title bouts, or some combination of the two.

Events held on Holiday weekends are associated with increased PPV buys. While it is possible that the Holiday weekend may be the driver of increased PPV purchases, it is conceivable that the UFC may place more “popular” fighters on these cards or may increase marketing and promotional efforts for events on these dates. While quantifying “fighter popularity” above and beyond previous fight performance is outside the focus of this research, future work may investigate the impact of fighter popularity on demand.

Contrary to the widespread belief held in the popular media, the results also suggest that fighters who were participants in The Ultimate Fighter series do not significantly impact PPV purchases. It does, however, appear that the reality show sparked the UFC’s ability to increase the frequency at which they held both cable/satellite and PPV events. So while these indicator variables may not be significant when using PPV purchases as the dependent variable, the result may be muted by the fact that the number of UFC PPV events has increased following the TUF series’ introduction.