THE DETERMINANTS OF BOX OFFICE REVENUE FOR DOCUMENTARY MOVIES

Neil Terry, West Texas A&M University
Leigh Browning, West Texas A&M University
Lisa Mitchell, West Texas A&M University

ABSTRACT

This paper examines the domestic box office revenue determinants of movies from the documentary genre. The sample consists of the top 100 gross box office revenue documentary films released during 1978-2014. Regression results indicate the primary determinants of box office revenue for documentaries are the ability of a movie to achieve wide release, revenue generation from opening weekend, receiving a restricted rating, and award nominations. One of the more interesting results include the observation that within the documentary movie genre critical ratings do not significantly impact box office revenue based on the observation that documentaries receive relatively high critical ratings for most films, which negates the uniqueness of positive critical reviews. In contrast, acclaim via award nominations is a positive and significant determinant of box office revenue. The results provide evidence that critical acclaim via positive reviews does not help distinguish a documentary but award nominations can play a major role in helping a film achieve commercial success. **JEL Classification**: L8

INTRODUCTION

The documentary film is unlike any other genre. In fact, the documentary film is the blank canvas that allows filmmakers to shape and polish story arcs as the plot unfolds. This process leads to films that take the viewer inside the minds and lives of those who have experienced what most of us have not. However, this naïve view of the power of the documentary film has not always been the norm. A surprising large number of people, including documentary filmmakers, will strive to differentiate the nonfiction films they enjoy from something they have stereotyped as documentaries. Documentaries, from the reputation they seem to hold, are the films some of us had to watch in the fifth grade. They tended to be filled with facts and can be painful to watch (Bernard, 2011). Fast-forward to a more contemporary view of this genre, the documentary film is no longer considered second class. In the modern world of the movie industry the documentary genre is uniquely positioned to play multiple roles, which include serving as forms of entertainment, art, an information source, and outlet for investment or grants.

A single movie can be the difference between millions of dollars of profits or losses for a studio and filmmaker in a given year (Simonoff & Sparrow, 2000). The purpose of this research is to analyze the motion picture industry with a focus on the determinants of domestic box office revenues of documentaries. This manuscript is divided into five sections. First, a survey of the related literature on the movie industry is discussed. The second section offers background information specific to the documentary genre. The third provides the model specification. The next section puts forth an empirical evaluation of the determinants of domestic box office revenues for the top grossing documentary movies released during the years 1978-2014. The final section offers concluding remarks.

SURVEY OF THE LITERATURE

Although no research has focused exclusively on the documentary movie genre, many researchers have developed models that explore the potential determinants of motion picture box office performance and related issues. Litman (1983) was the first to develop a multiple regression model in an attempt to predict the financial success of films. The original independent variables in the landmark work include movie genre (science fiction, drama, action-adventure, comedy, and musical), Motion Picture Association of America rating (G, PG, R and X), presence of a superstar in the cast, production costs, release company (major or independent), Academy Awards (nominations and winning in a major category), and release date (Christmas, Memorial Day, summer). Litman's model provides evidence that the independent variables of production costs, critics' ratings, science fiction genre, major distributor, Christmas release, Academy Award nomination, and winning an Academy Award are all significant determinants of the success of a theatrical movie. Litman and Kohl (1989), Litman and Ahn (1998), and Terry, Butler, and De'Armond (2004) have replicated and expanded the initial work of Litman. None of the extensions of Litman's work has explicitly focused on the determinants of domestic box office revenue of the documentary movie genre.

One strong area of interest in the movies literature has been the role of the critic (Weiman, 1991). The majority of studies find that critics play a significant role on the success or failure of a film. Eliashberg and Shugan (1997) divide the critic into two roles, the influencer and the predictor. The influencer is a role where the critic will influence the box office results of a movie based on his or her review of the movie. Eliashberg and Shugan's results suggest that critics have the ability to manipulate box office revenues based on their review of a movie. The predictor is a role where the critic, based on the review, predicts the success of a movie but the review will not necessarily have an impact on how well the movie performs at the box office. Eliashberg and Shugan show that the predictor role is possible, but does not have the same level of statistical evidence as the influencer role.

King (2007) explores the theoretical power and weakness of critics on the box office performance of movies. The substantial market power of critics is derived from the following: (1) Film reviews are widely available in newspapers, magazines, and websites. The ubiquitous availability of critical reviews in advance of a movie release creates positive or negative energy in the critical opening weeks; (2) Film critics regard themselves as advisors to their readers. They are often as explicit in their recommendations as Consumer Reports is about other consumer purchases; and (3) Film critics are likely to be considered objective. There are too many critics and too many films for serious critical bias to develop. Those who are skeptical about the influence of film critics point to the following counter arguments: (1) It is possible that the effects of aggressive marketing at the time of a film's release might dominate critical evaluations in determining opening attendance; (2) Critics may raise issues that do not concern most audiences. They are more likely to notice and comment on technical issues, like cinematographic technique, than the average member of the audience; and (3) Critics may write for a readership that has different tastes from the average cinemagoer. The most obvious potential reason for this is demographic. Cinema audiences are younger than the general population and less likely to pay attention to print reviews. Critics might therefore, be expected to aim their reviews at the older demographic audience and give relatively negative reviews to certain film genres. The empirical results put forth by King (2007) are mixed with respect to the impact of critics on box office earnings for the U.S. box office in 2003. He finds zero correlation between critical ratings for films and gross box office earnings when all releases are considered because of the affinity critics have for foreign movies and documentaries relative to the general public. For movies released on more than 1,000 screens, critical ratings have a positive impact on gross earnings.

Reinstein and Snyder (2000) focus on the critics Siskel and Ebert and how their reviews impact box office success. The authors report that the correlation between good movie reviews and high demand might be false due to unknown quality measurements. In order to circumvent the proposed false correlation Reinstein and Snyder apply a “differences in differences” approach that yields a conclusion that positive reviews have a surprisingly large and positive impact on box office revenue. Reinstein and Snyder also report that their results show that the power to influence consumer demand does not necessarily lie in the entire critic population, but may lie in the hands of a few critics.

Wallace, Seigerman, and Holbrook (1993) employ a sample of 1,687 movies released from 1956 through 1988 to investigate the relationships between movies box office success and critic ratings. They find a poorly rated movie will actually lose money for every positive review it receives while a highly rated movie will continue to gain money for every positive review it receives. They conclude that a bad movie has something to gain by being as trashy as possible, while it pays for a good movie to strive for excellence. Ravid (1999) has also looked at movie reviews as a source of projecting higher revenues. He concludes that the more reviews a film receives, positive or negative, the higher revenues it will obtain.

Although much research has supported the critic as a positive indicator of box office success, others have shown that the critic plays a much less important role. Levene (1992) surveyed students at the University of Pennsylvania and concludes from her 208 useable surveys that positive critic reviews ranked tenth, behind plot, subject, and word-of-mouth on a list of factors that influence the decision to watch a film. Levene’s study reveals that theatre trailers and television advertising were the two most important determinants. Faber and O’Guinn (1984) conclude that film advertising, word-of-mouth and critics’ reviews are not important compared to the effect that movie previews and movie excerpts have on the movie going public. Wyatt and Badger (1984) find that negative or positive reviews have little effect on the interest of an individual to see a movie over a mixed review or seeing no review. Further research by Wyatt and Badger (1987) conclude that positive reviews and reviews that contain no evaluative adjectives, which they called non-reviews, are deemed more interesting than a review that was negative or mixed. More recently, Wyatt and Badger (1990) report that reviews containing high information content about a movie raise more interest in a film than a positive review.

Research has shown a seasonal pattern in movie releases and box office performance. Litman (1983) reports that the most important time for a movie release is during the

Christmas season. Sochay (1994) counters this with evidence that the summer months are the optimal time of year to release a motion picture. Sochay, referencing Litman (1983), explains his conflicting results are due to competition during the peak times. Sochay adds that the successful season will shift from the summer to Christmas in different years due to film distributors avoiding strong competition. Radas and Shugan (1998) developed a model that captures the seasonality of the motion picture industry and apply it to the release of thirty-one movies. The authors find that the length of a movie release on average is not longer during the peak season but peak season movies typically perform better at the box office. Einav (2001) investigates seasonality in underlying demand for movies and seasonal variation in the quality of movies. He finds that peak periods are in the summer months and the Christmas season because distributors think that is when the public wants to see movies and when the best movies are released. He comments that distributors could make more money by releasing "higher quality" movies during non-peak times because the movie quality will build the audience and there will be less competition than at peak times.

Film ratings passed down from the Motion Picture Association of America (MPAA) may also influence box office performance. Many film companies fight for a better rating, often re-shooting or re-editing scenes multiple times in order to get their preferred ratings, most often being PG or PG-13 because these ratings exclude virtually no one from seeing the movie. Sawhney and Eliashberg (1996) develop a model where the customer's decision-making process on whether to see a movie can be broken into a two-step approach, time-to-decide and time-to-act. The results of their study show that movies with an MPAA rating of restricted (rated R) perform worse at the box office than movies without a restricted rating. The analysis shows that restricted rated movies have a higher time-to-act but have longer time-to-decide periods than family movies. Terry, Butler, and De'Armond (2004) verify the negative impact of the restricted rating on box office performance, providing evidence of a penalty in excess of $10 million. Ravid (1999) provides evidence from a linear regression model that G and PG rated films have a positive impact on the financial success of a film. Litman (1983) on the other hand, finds that film ratings are not a significant predictor of financial success. Austin (1984) looks at film ratings in an attempt to find a correlation between ratings and movie attendance but find no significant relationship.

Anast (1967) was the first to look at how film genre relates to movie attendance. His results show that action-adventure films produce a negative correlation with film attendance while films containing violence and eroticism had a positive correlation. Litman (1983) shows that the only significant movie genre is science fiction. Sawnhey and Eliashberg (1996) use their two-step approach and find that the drama genre has a slower time-to-act parameter while action movies result in a faster time-to-decide than other movie genres. Neelamegham and Chinatagunta (1999) employ a Bayesian model to predict movie attendance domestically and internationally. They find that across countries the thriller and action themes are the most popular, while romance genre was the least popular.

Terry, King, and Patterson (2011) examine the determinants of horror movie box office revenue for the years 2006-2008. The most interesting result of the study is the observation that slasher movies are the most profitable theme and zombie movies are the least profitable theme in the horror movie genre. Fictional characters have always driven the horror movie genre. The early years of the horror movies focused on characters like Dracula, Wolfman, and Frankenstein. The modern star fictional characters with box office draw are slasher killers like Freddy, Jason, and Jigsaw. Number of theatres featuring a movie during opening weekend is revealed to have a significant impact on box office revenue but holiday release is not a significant determinant. One of the most influential determinants of domestic box office performance of horror movies is critical acclaim. Horror movies are one of the most harshly reviewed movie genres. The fact that the majority of horror movies receive poor critical reviews creates a box office opportunity for the relatively rare horror movies that receives critical acclaim. Movie sequels are shown to have a positive and statistically significant impact on domestic box office performance of horror movies. The built in audience associated with a sequel is worth approximately $7 million in domestic box office revenue. Horror movies earning a restricted rating pay a significant financial box office penalty of $15 million to $29 million. Production budget is also identified as a positive and significant determinant of domestic box office performance of horror movies.

Awards are important to every industry but few industries experience financial compensation from an award more than the motion picture industry (Lee, 2009). Litman (1983) shows that an Academy Award nomination in the categories of best actor, best actress, and best picture is worth $7.34 million, while winning a major category Academy Award is worth over $16 million to a motion picture. Smith and Smith (1986) point out that the power of the Academy Award explanatory variable in models explaining patterns in movie rentals will change over time as the effects of different Academy Awards could cause both positive and negative financial results to a movie in different time periods. Nelson, Donihue, Waldman, and Wheaton (2001) estimate that an Academy Award nomination in a major category could add as much as $4.8 million to box office revenue, while a victory can add up to $12 million. The authors find strong evidence toward the industry practice of delaying film releases until late in the year as it improves the chances of receiving nominations and monetary rewards. Dodds and Holbrook (1988) look at the impact of an Academy Award after the nominations have been announced and after the award ceremony. The authors find that a nomination for best actor is worth about $6.5 million, best actress is worth $7 million and best picture is worth $7.9 million. After the award ceremony the best actor award is worth $8.3 million, best picture is worth $27 million, and best actress award is not statistically significant. Simonoff and Sparrow (2000) find that for a movie opening on less than ten screens, an Academy Award nomination will increase the movies expected gross close to 250 percent more than it would have grossed if it had not received the nomination. For movies opening on more than ten screens, an Academy Award nomination will increase the movies gross by nearly 30 percent.

Opening weekend box office performance of a movie is often a critical determinant of the overall financial success of a film. In the case of motion pictures, decay effects means the diminishing attractiveness of movies as time goes on. The sales pattern of widely released movies shows an exponential distribution where the early period sales are the highest and drop throughout the life cycle (Liu, 2006). Therefore, the box office revenue at some later week is usually less than that of previous weeks. According to Einav (2007), in his reduced form of individual utility, there could be two possible effects that are captured by the decay effect: First, potential markets shrink over time because most people go to a movie only once. Second, consumers prefer watching a movie earlier. The result of the study shows the estimated decay of revenues of almost 40 percent per week.

Literature investigating movie revenue streams beyond the box office are limited. Chiou (2008) explores the timing of a theatrical release as it relates to the home video industry and finds the highest demand season for the video market is between Thanksgiving and Christmas. Terry and De'Armond (2008) employ regression analysis to investigate the determinants of movie video rental revenue. They find domestic box office, Academy Award nominations, and domestic release exposure to be positive and significant determinants of movie video rental revenue. Time to video, sequels, and children's movies are shown to have a negative and statistically significant impact on video rental revenue.

THE DOCUMENTARY AS A COMMERCIAL PRODUCT

Bernard (2011) notes that documentaries bring viewers into new worlds and experiences through the presentation of factual information about real people, places, and events generally - but not always – portrayed through the use of actual images and artifacts. It is those gritty stories we tend to love the most. Stories we tell are a part of the fabric of our culture. Whether documentary or narrative, they are the foundation of all things in the mass media world (Campbell, Martin, Fabos, 2011). Documentaries are based on facts, as seen by the filmmaker, which bring us in touch with a world we would not otherwise have the ability to see.

Although a separate genre from the narrative film, the same process applies to the documentary. A filmmaker who sets out to get a documentary film produced must deal with issues at all five stages of the process. Development, pre-production, production, post-production, and distribution are all complicated stages of filmmaking, regardless of the type. Where documentary filmmaking takes a serious turn from other genres, within the narrative umbrella, is the business model surrounding profit. Scholars and industry leaders differ in their opinion as to the profit viability of the documentary film today.

Chris Anderson (2006) captures the paradigm shift in business today in his book, The *Long Tail*. Companies are surviving at the end of a long tail, finding very niche audiences. Many believe this is the place for the documentary genre. For goods like music, video, and information, which can be digitized, distribution costs approach zero, so the tail can be extremely long. Anita Elberse (2008) advises documentary filmmakers to keep costs low and take advantage of digital distribution formats in order to enjoy larger profit margins that exist at the end of the tail.

Alex C. (2012) explains that the increase in documentary filmmaking can be attributed to many factors. Perhaps we are tired of reality television, sick of Hollywood, and actually care about our fellow human beings. The rise in the number of documentaries being produced started in 2004, particularly those focused on social issues. For committed filmmakers, new technology has made it easier and cheaper to create beautiful stories. For social activists, documentaries add a compelling narrative element to their struggle for social change. Documentary film is undergoing major shifts due to technology and distribution portals. Alex C. (2012) unpacks the reason so many documentaries are produced with such a low possibility of a big profit margin. The research indicates that most documentaries operate outside of the market forces of major Hollywood blockbusters, which allows them to seek a different audience. Because of this, they often garner an alternative revenue stream from grants, crowd funding, non-governmental organizations (NGO), and private donations. Documentary film projects received over $70 million in grants for documentary film projects from 2002-2011. Distribution portals have enhanced the indie filmmaker's ability to get a documentary noticed. Some of the more substantial platforms are Hulu, Indieflix, the iTunes Store, YouTube, Vimeo, Distrify, Reelhouse, Pivotshare, VHX, and Yekra (Valentini 2014). Making money from—let alone finishing—a documentary remains a great challenge, but their evident proliferation over the past ten years should encourage cautious optimism for the future of the genre. The long tail may not hold large profits, but it contains the seeds for influence and impact.

The most comprehensive lens put to the film industry is the book, *Sleepless in*

Hollywood: Tales from the New Abnormal in the Movie Business, by Lynda Obst (2013). To understand the fate of the documentary today, an examination of the new abnormal is essential. Narrative filmmaking today is about the international box office appeal and the mega deal. The documentary film has been immune to this change, so far. As noted, this is due to technology, distribution, and the rise in audience in the past few years. Obst (2013) breaks down a landscape for the narrative film business that is a bit bleak for the industry enthusiasts. Original narrative film scripts produced and released in 1981 was a meager seven. In 2011 there were none. Narrative film today is all about the deal and not the story. Documentary fills a gap today, that earlier did not exist.

Technology, digital distribution portals, the desire for the truth, and the fundamental concern for humanity, are all viable reasons to embark on the process of making a documentary film today. Big profit is purposely left off that list. But, that is not to say that one cannot make a profit in this genre. Today, the path to profit is an ever-changing road.

DATA AND MODEL

Predicting the financial performance of films is widely regarded as a difficult endeavor. Each movie has a dual nature, in that it is both an artistic statement and a commercial product (Sochay, 1994). Many studies have attempted to estimate the determinants of box office performance by employing empirical models to high profile features. The approach of this study provides a unique focus on the determinants of box office revenue for documentary movies. The sample includes the top 100 grossing motion pictures released during 1978-2014 that are classified by boxofficemojo.com as documentary movies. The movies selected for the research cohort are the 100 documentaries with domestic box office gross revenue over $1.5 million.

The primary source of data for this study is the Rotten Tomatoes website (rottentomatoes.com). The website utilizes a unique rating system that summarizes positive or negative reviews of accredited film critics into an easy to use total percentage that is aggregated for each motion picture. In addition to providing a system of aggregate reviews, the website also contains information pertaining to revenue, release date, movie rating, and genre. Movies.com, Oscars.org, WorldwideBoxoffice.com, boxofficemojo.com, imdb.com, and the-numbers.com are additional sources of data and information.

The empirical model employed to investigate the determinants of documentary box office performance for this study is specified as:

$$(1)\ BOXOFFICE_i = B_0 + B_1 OPENING_i + B_2 THEATRES_i + B_3 CRITIC_i + B_4 AWARDS_i + B_5 RESTRICTED_i + B_6 BUDGET_i + u_{i,}$$

Where BOXOFFICE is domestic box office earnings adjusted for inflation and presented in real 2014 dollars, OPENING is domestic box office revenue generated from the opening weekend of a documentary release, THEATRES is number of theaters featuring the movie during the weekend of widest release, CRITIC is the percent of composite approval rating for a movie by a group of leading film critics, AWARDS is a categorical variable for movies that receive five or more nominations for major awards (e.g., Academy Award, Los Angeles Film Critics, New York Film Critics), RESTRICTED is a categorical variable for movies with a restricted rating (Rated R), and BUDGET controls for the estimated production for each movie after being adjusted for inflation by converting all nominal values to 2014 real values. Several alternative model specifications were considered but the limited box office revenue for most documentaries restricts the ability to put forth a more robust model.

Descriptive statistics for the model variables are presented in Table 1. The average box office revenue in the sample is $10.7 million, with a maximum of $149.6 million (Fahrenheit 9/11). The five films in the research cohort grossing more than $34 million in 2014 real dollars are Fahrenheit 9/11 ($149.6 million), March of the Penguins ($94 million), Justin Bieber: Never Say Never ($77 million), Earth ($35.3 million), and 2016: Obama's America ($34.5 million). The explicit marketing from production studios and implicit marketing from movie reviews tend to make the opening weekend the most profitable single weekend for most films. The average opening weekend for the research cohort is $1.4 million, which includes 19 movies with an opening weekend that are above the mean and 81 that are below the mean. The relatively modest opening weekend numbers implies that documentaries do not tend to rely on opening weekend as much as most other movie genres. The 19 movies that have an opening weekend box office above the mean include six focusing on various musical artists, which includes Justin Bieber, One Direction, Katy Perry, Tupac Shakur, John Lennon, and Madonna. Number of theaters showing a film during the weekend of widest release is expected to have a positive impact on domestic box office. Average wide release for a documentary in the sample is 423 theatres. Justin Bieber: Never Say Never is the cohort leader for number of theatres at 3,118. Only 15 movies in the research cohort ever reach a wide release of more than 1,000 theatres.

Average critical rating of the movies in the research cohort is approximately 84 percent positive with a standard deviation of 16.4. Five movies in the sample earn 100 percent positive rating from the critics. The five movies are Roger and Me ($15.9 million), Paris is Burning ($6.6 million), Flying Monsters ($6 million), Jerusalem ($5.2 million), and Man on Wire ($3.3 million). The expectation is for critical acclaim to have a positive impact on box office success. An alternative form of critical acclaim is formal recognition for industry awards such as an Academy Award nomination. Sixty percent of the movies in the research sample received award nominations.

Rated R movies are expected to have a negative impact on box office revenue because the rating restricts attendance to individuals 17 years of age and older. The restricted rating is applied to nineteen percent of the movies in the research sample. Production budget for a documentary is normally very modest compared to other movie genres. Sicko by Michael Moore leads the way with a budget of $9 million but the average production budget for a documentary in the sample is only $866,025.

DETERMINANTS OF BOX OFFICE REVENUE OF DOCUMENTARIES

The estimated empirical relationship between the explanatory variables and box office revenue for documentaries is presented in Table 2. Two model specifications are put forth based on incomplete data for the BUDGET variable. The first is the full model, which includes all 100 movies in the sample. The second specification only includes the 54 movies that have BUDGET information available. The full and reduced model specifications are extremely consistent. Both models explain over 65 percent of the variance in documentary movie box office revenue. None of the independent variables have a correlation higher than 0.75 (THEATRES and OPENING have the highest correlation at 0.69), suggesting that excessive multicollinearity is not a problem with the analysis. Four out of the six model independent variables are statistically significant.

The first two independent variables in the model relate to the ability of documentaries to access exposure. The OPENING variable has positive and statistically significant impact on box office revenue for the research sample. The results are not surprising given that musical artist based documentaries dominate opening weekend numbers and tend to be major studio supported efforts that treat the opening weekend as a nationwide concert event. Justin Bieber, One Direction, Katy Perry are a few of the recent musical acts opening with a weekend box office revenue ranging between $7 million to $30 million. Of course, most documentaries do not enjoy an organized wide release effort on the opening weekend. March of the Penguins opened with revenue of only $137,000 on the first weekend but built momentum over time to expand to a peak of 2,506 theatres and total box office revenue of $94 million. Hence, opening weekend revenue is a significant predictor of box office revenue but total number of theatres during the widest week of release can also be an important determinant for documentaries that build momentum over time. The empirical results from this study indicate that number of theatres has a positive and statistically significant impact on box office revenue for documentaries. The two regression models imply an additional $143,000 to $150,000 increase in box office revenue per 100 screens of extra theatre exposure. Regardless to if the source of number of theatres is a push from a major studio or simple momentum from an independent following, achieving some degree of wide release is important for a documentary to find box office success.

The variables CRITIC and AWARDS explore the impact of critical acclaim from both a micro and macro perspective. Good reviews and award recognition are expected to stir curiosity and identify quality. The CRITIC variable is positive but not statistically significant. As mentioned in the previous section, a composite positive rating of 84 percent makes it very difficult for documentaries to distinguish one from another. Horror movies represent the opposite side of the of the critical review spectrum with less than 38 percent of horror movies receiving a positive rating (Terry, King, and Patterson, 2011). Horror movies with acclaim across multiple critics provide an opportunity for distinction from the crowd but documentaries have little room to standout as even a film with 100 percent rating is only one standard deviation from the mean. Critical acclaim in the form of multiple major award nominations has a positive and statistically significant impact on box office revenue of documentaries. Holding other model variables constant, the empirical results imply the AWARD variable has a coefficient of approximately $5 million. One possible explanation for the result is that most documentaries do not have a large marketing budget so recognition from award nominations provides indirect promotional support. In addition, award recognition may serve as a signal to casual fans of the genre that a film merits priority viewing. As a rule of thumb, most documentaries are popular with critics but those that achieve award nominations are considered extraordinary.

Another element that can affect the financial performance of a film is the rating assigned by the Motion Picture Association of America. The motion picture industry established the code as a means of giving advance information to parents and others about the theme and treatment of films. This voluntary code was adopted to prevent stringent forms of governmental controls. There are four possible ratings given to films in the research sample—G (general audiences), PG (parental guidance suggested), PG-13 (possibly unsuitable for children less than 13 years of age), and R (restricted; children not admitted unless accompanied by an adult). The conventional wisdom is that the family product sells, while an adult theme or treatment has a limited customer base because of age restrictions limiting access to the lucrative teenage market. This hypothesis does not appear to be valid for the documentary genre. Empirical results from this study reveal a RESTRICTED variable that is positive and statistically significant in both model specifications. The box office gain associated with restricted movies is approximately $4 million in both model specifications. One possible explanation is that documentary fans prefer authentic films that illustrate some of the more graphic story details that are associated with a restricted rating. A second explanation is to recognize that youth audiences are not the target for the human interest and political themes associated with many documentaries with restricted ratings.

The last variable in the model is BUDGET. Model results indicate the BUDGET variable is a positive but not a statistically significant determinant of domestic box office revenue for documentaries. Big budget movies with high profile movie stars, brand name directors, expensive special effects, and large advertising budgets have an obvious advantage drawing crowds at the box office but are not the normal domain of movies that fall in the documentary category. With an average budget of only $866,000 in the research sample, documentaries are the antithesis of the Hollywood summer blockbuster. In the extreme, most documentaries are more of a form of art and history than a viable commercial product that attracts significant investors. Another possible explanation is that documentaries are simply not comparable to most other motion picture genres with respect to revenue and expense considerations.

CONCLUSION

The documentary movie genre is a unique form of reality entertainment. Scholars and industry leaders differ in their opinion as to the profit viability of the documentary film today. This study examines the determinants of documentary movie box office revenue for the years 1978-2014. This study provides evidence that box office success for most documentaries is driven by exposure, award recognition from critics, and overall quality instead of studio production budgets. Opening weekend box office revenue and number of theatres during the week of widest release exposure variables are both positive and statistically significant determinants of documentary box office revenue. The positive or negative review of aggregated measures of critical acclaim captured by a rating database like the Rotten Tomatoes website is not statistically significant in this study. The documentary genre receives relatively high positive ratings across the board making it hard to employ the metrics as a form of distinction. That being said, critical acclaim via multiple award nominations is found to be positively and statistically significant with a coefficient estimate value of approximately $5 million. Unlike most other genres, documentaries appear to benefit from the graphic exposition associated with a restricted rating. Specifically, the positive and statistically significant coefficient for the restricted rating variable is approximately $4 million. Finally, production budget has a positive impact on the box office revenue of documentaries but the variable is not a statistically significant determinant.

One avenue for future research into the documentary movie genre profitability is to extend the research focus to include alternative forms of revenue streams such as the various home video markets and foreign box office. A second avenue for future research is focusing on other specialty genres, which include music/concert, political, nature, and human-interest themes.

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Table 1
Summary Statistics for Documentary Movies (1978-2014)

Variable	*Mean*	*Maximum*	*Minimum*	*Standard Dev.*
BOXOFFICE	10,707,535	149,608,683	1,538,899	19,557,077
OPENING	1,438,883	29,414,054	4,632	4,367,071
THEATRES	423	3,118	6	666
CRITIC	84.09	100	8	16.39
AWARDS	0.60	1	0	0.492
RESTRICTED	0.19	1	0	0.394
BUDGET	866,025	9,000,000	15,355	781,175

n = 100

Table 2
Determinants of Box Office Revenue for Documentary Movies (1978-2014)

Variable	*Full-Model Coefficient (t-statistic)*	*Reduced Model Coefficient (t-statistic)*
Intercept	-8,909,269 (-1.58)	-8,269,843 (-1.27)
OPENING	1.66735 (4.01*)	2.66735 (4.21*)
THEATRES	15,051 (5.17*)	14,332.17 (4.89*)
CRITIC	116,455 (1.29)	107,081 (1.05)
AWARDS	4,955,626 (2.09*)	5,257,818 (2.29*)
RESTRICTED	3,887,830 (1.99*)	4,057,828 (2.17*)
BUDGET		0.5390 (0.51)
N	100	54
R-square	0.6564	0.6732
F-Value	35.92*	31.88*

Notes: *p<.05.