Government Allocation of Import Quota Slots to US Films in China's Cinematic Movie Market

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ABSTRACT

The Chinese government implements a complex regulatory system to decrease the market share of imported Hollywood films for theatrical release. The import quota, censorship, and competitive release-scheduling policies in particular severely limit Hollywood's access to the Chinese market. However, because the government has a monopoly on film distribution and receives nearly half of all box office receipts from Hollywood films, I expect that the profit incentive is comparatively more important than protectionist motives in the decision to import a Hollywood film or grant it a revenue-sharing quota slot. This paper's findings support this hypothesis. Using a probit model, I find that three strong predictors of Chinese box office, namely US box office, Hong Kong box office, and the action genre, positively predict entry to the Chinese market and the allocation of a revenue-sharing quota slot for US-movies released in 2012.

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GLOSSARY

CARA	Classification and Ratings Administration (US)
CCTV	China Central Television
CFG	China Film Group
IMDB	Internet Movie Database
MPA	Motion Picture Association (global)
MPAA	Motion Picture Association of America (US)
SARFT	State Administration of Radio, Film and Television (China)
WTO	World Trade Organization

I. Introduction

In 2010 China generated US$ 1.5 billion in box office revenue, making it the world's sixth-largest market for cinematic film (Fritz & Horn, 2011). Less than two years later, it nearly *doubled* that figure to generate US$ 2.71 billion and displace Japan as the second-largest box office in the world (Cain, 2013 [#]; Cain, 2012 [#]). This blistering pace of growth is astonishing in light of the dense regulatory framework that governs all cinematic releases in China. The Chinese government employs import quotas, censorship, targeted blackouts of foreign film screenings, competitive release scheduling, and delayed releases as mechanisms for controlling which films screen in Chinese theaters and for influencing how well they perform. This pervasive governmental presence, compounded by the government and film industry's mutual reluctance to publish easily-accessible box office data[1], makes the Chinese cinematic film market highly opaque.

Despite these significant barriers to market entry and competition, Hollywood studios annually capture a 30 to 50% stake in the Chinese market (Cain, 2013 [#]). This is not unusual; Hollywood earns over fifty percent of total annual box office revenue in almost all foreign markets where it has a presence (Waterman, 2005). Likewise, Hollywood depends on the foreign box office for over half of its own annual revenue, which makes the lucrative Chinese market very attractive to US studios (Waterman, 2005). Hollywood has been able to overcome high barriers to entry because the industry is politically as well as economically powerful. The six Motion Picture Association of America (MPAA) member studios[2] maintain a positive trade

[1] The government publishes a limited amount of box office data for certain subsets of the films released each year in the *China Film Yearbook* series, but complete data sets cannot be obtained anywhere in machine-readable format.

[2] These studios, sometimes referred to as the "majors," include Walt Disney Studios Motion Pictures, Paramount Pictures Corporation, Sony Pictures Entertainment, Inc., Twentieth Century Fox Film Corporation, Universal City

balance in all 140 countries with which they trade. This makes Hollywood one of America's largest net exporting industries, which in turn enables it to secure the US Trade Representative as an advocate (U.S. Trade Representative, 2010; Waterman, 2005). In 2007 the US issued claims against China in the WTO challenging its regulations on import and distribution of foreign publications, movies, and music, especially vis-à-vis domestic products. A WTO panel found China in violation of its free trade obligations in 2009 and ordered them to come into compliance (U.S. Trade Representative, 2010). This ultimately resulted in the US-China Film Agreement of 2012, which I discuss below.

Despite these barriers to trade the United States consistently beats outs other countries for China's limited number of film import quota slots. Appendix 2 shows a breakdown of 2012's import quota slots by country. When China awards over 80% of quota slots to the United States, as it did in 2012, the competition for each slot is essentially between Hollywood studios. For this reason, I limit the scope of this paper to investigating how the Chinese government chooses from among a pool of US-produced films, and not how they choose between films from the US or from other countries. Additionally, and as my language suggests, I exclude DVDs, pay-per-view television screenings, and other film mediums and focus analysis exclusively on films shown in theaters.

Popular press outlets have reported on China's movie market at length but opacity of data has repelled empirical research by economists. Recent advances in modeling predicted foreign box office revenue (Elberse and Eliashberg, 2003; Hennig-Thurau et al. 2004) have been applied to virtually every East Asian market except China. Francis Lee (2008, 2009) investigated which factors predict how a Hollywood movie performs in various East Asian markets but excluded

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Studios LLC, and Warner Bros. Entertainment Inc. In addition to the six majors, there are three "mini-major" studios: DreamWorks SKG, Lions Gate Entertainment, and Metro-Goldwyn Mayer (MGM).

China from both studies. In an earlier study, Lee specifically investigated Hollywood box office in Hong Kong (2006). Fu & Lee (2008) analyzed the economic and cultural factors affecting consumption of foreign films in Singapore. Ferreira, Petrin, and Waldfogel (2012) say in an early draft of their work on modeling the world movie market that "…trade restrictions such as China's [34]-film annual import cap… [create] a need for [analysis of] the welfare impacts of trade in motion pictures."

In this paper I investigate factors influencing the Chinese government's allocation of import quota slots to Hollywood movies. I hypothesize that when allocating slots the Chinese government derives utility from four components of a US film: 1) its predicted Chinese box office revenue, 2) the absence of obscene or offensive content, 3) the film's producing studio, and 4) the positive portrayal of China and Chinese values/culture. For reasons outlined in the data section, I will only test for significance of the first three components in this work; the fourth I leave to future research on the subject. Empirically, I use a probit model to investigate the quota allocation decision by regressing a variable capturing entry into the Chinese market (where successful entry=1 and non-entry=0) on predictor variables that reflect hypotheses 1 - 3.

This paper proceeds as follows: Section II contains background information on China's cinematic movie market which justifies the hypotheses outlines above. Section III is a review of relevant literature. In section IV I relate select film trade theories, and in section V, the data used in this analysis. Section VI contains empirical specifications and section VII relates results, followed by a short conclusion that sketches a path for future research.

II. Background

I have already mentioned that China exercises a dense regulatory framework to combat the capture of domestic market share by foreign films (Waterman, 2005). This section expounds on why and how the government heavily regulates imported films and in doing so establishes a basis for the hypotheses outlined in the introduction and my empirical specification. I first explain the politicization of film in China (the "why"), then outline the market control mechanisms used by the government (the "how").

The Politics of Film in China

The political mobilization of film as a propaganda tool traces back to the 1920s, when film as a media form was firsts introduced to China. In the tumultuous political atmosphere of the 20s and 30s cinematic nationalism was a way to perpetuate the myth of perfect national unity and also to rebuff Westernization (Hu 2003; Teo 2009). Because the Chinese film industry has historically been conceptualized as a way to safeguard national culture and values and resist Westernization, China is particularly leery of imported Hollywood films, which it believes espouse "Western" values. The government is anxious to protect nationalist sentiment and cultural values from being eroded by an influx of Hollywood movies. As a result, Hollywood films were banned in China's theaters between 1949 and 1994 (Berry, 2012). Despite the fact that rapid market growth and trade liberalization increasingly challenge governmental control over what is seen by Chinese audiences, the People's Republic of China continues to view the cinematic film market as a propagandistic arena. In 2012 former President Hu Jintao made an official statement decrying '"international hostile forces" that use the "cultural field" to "infiltrate ... westernize and divide China"' (Gewirtz, 2012). This continuing politicization of film underpins the fourth component of my hypothesis, that the government cares about how

China is depicted in foreign films. Some of the market's most successful Hollywood films have been those which depict China in a way favorable to government interests – DreamWorks' *Kung Fu Panda* (2008) and *Kung Fu Panda 2* (2010) are good examples of such a film.

Mechanisms for Market Control

As in other countries where film is used as propaganda, the Chinese government is deeply enmeshed in every aspect of China's film industry. China's State Administration of Radio, Film and Television (SARFT), the media arm of the government, is responsible for the review and regulation of all films screened in China and SARFT's censorship board has jurisdiction to censor domestic and foreign productions alike. The censorship board also controls the allocation of import quota slots. Through SARFT the government also has an effective monopoly on the distribution of Hollywood films. Certain studios have strategically positioned themselves in the market by cultivating repertoire with SARFT. I consider censorship, import quotas, the distributor monopoly, and studio relations in turn – these encompass the remaining three relevant components in my empirical model (representation of China in film was discussed in the above section). I will also discuss black-outs and competitive release-scheduling because these policies account for unexpected values for certain variables in the data.

Censorship

China places a strong emphasis on censorship not only to ensure compliance with the political aims listed above, but also because the country lacks a rating system. Unlike the US, where the Classification and Ratings Administration (CARA) rates films on a scale of G, PG, PG-13, R, and so forth, the SARFT censorship board regulates the content of movies to make them suitable for the entire national audience (Cain, 2011 [#]).

This board has roughly 40 members including government officials, filmmakers, academics, and representatives from interest groups like the Communist Youth League (Cieply & Barnes, 2013). When a Hollywood film applies for a quota slot its producers submit either a script or a finished film to the censorship board. If the board decides to award the film a quota slot, they then stipulate any edits needed to make the film eligible for release. SARFT then reviews the finished product before green-lighting it for cinematic release. In 2008 SARFT circulated a list of offensive content that would not be allowed in any imported films. The list includes, among other things, "disparaging the image of the people's army," "murder, violence, terror, ghosts and the supernatural," and "showing excessive drinking, smoking, and other bad habits" (Cain, 2011 [#!]).[3]

Though these guidelines are codified, they are not uniformly enforced. Criticism and negative portrayals of the Communist party are universally prohibited, for reasons I discuss above, but several Hollywood blockbusters containing violence, anarchist themes, supernatural content, and other allegedly prohibited materials have been screened in Chinese cinemas. Examples include *The Hunger Games* (2012), *The Dark Knight Rises* (2012), and *The Expendables 2* (2012). Similarly, offensive content in the US version of the film may be edited out before the Chinese release. Compare *Titanic*'s 3D re-release (2012) to *Django Unchained* (2013): a scene containing nudity was cut from the former and it went on to become the highest-grossing film in China in 2012, but all screenings of *Django* were abruptly halted less than 12 hours after the film's release, allegedly due to scenes with male nudity (Cain, 2013 [#]; Zhou, 2013). These two facets (selective enforcement and pre-release editing) make it difficult to predict whether the content of a US version of the film significantly affects the Chinese

[3] See Appendix 1 for an English translation of this circular.

government's decision to allocate a quota slot. This background will be considered when interpreting the significance of the coefficients on offensive content in the empirical model.

Import Quotas

After the ban on Hollywood films was lifted in 1994 the Chinese government used import quotas to regulate film imports. There are two types of quota slots for imported films: revenue-sharing slots and flat-fee slots. A revenue-sharing film remits a set percentage of Chinese box office receipts to the producing Hollywood studio. This percentage has historically been significantly lower than revenue-sharing remittances in other countries: roughly 15% in China as compared to 50% in European markets (Waterman, 2005). For a flat-fee quota slot, a Chinese distributor (i.e. the government, as we will see below) pays a lump sum figure for a film up-front and does not remit any box office receipts to the producing studio.

From 1994 to 2001 China imported a maximum of 10 Hollywood films on a revenue-sharing basis. In the decade following 2001 this was increased to 20 revenue-sharing slots (Berry, 2012). In compliance with the US-China Film Agreement of 2012 China increased its import quota on revenue-sharing foreign films from 20 to 34. The 14 new slots are reserved for movies in 3-D or IMAX formats. Generally speaking, high-grossing blockbusters win revenue-sharing slots while lower-profile films from smaller studios or with more limited releases are allocated flat-fee slots. Though flat-fee slots are not stringently capped the number of flat-fee movies imported in a given year is roughly equal to the number of revenue-sharing movies (Cain, 2013 [#]). Flat-fee films comprise a virtually insignificant percentage of Chinese market share: in 2012, 31 flat-fee films accounted for 5.4% of China's total box office revenue while revenue-sharing films accounted for 45.6% (Cain, 2013 [#]).

Distributor Monopoly

The 2009 WTO ruling found that China was violating trade restrictions by allowing the government to monopolize the distribution of foreign films. Table 2 shows that all 34 revenue-sharing films of 2012 were distributed by China Film Group (CFG), some were co-distributed by Huaxia, and none of the films had any distributors aside from CFG and Huaxia. China Film Group is a direct subsidiary of SARFT and Huaxia is a state-owned enterprise whose revenues also flow back into SARFT (CITE). This monopoly on distribution is important because it gives SARFT a profit incentive to value the predicted Chinese box office of imported films.

In addition to adding 14 revenue-sharing quota slots, the 2012 US-China Film Agreement also increased the percent of box office revenue remitted to Hollywood studios on their films from around 15% to 25%. The 14 new slots generated roughly US$600 - 700 million in additional box office revenue over 2011 (and are in large part responsible for the exponential market growth mentioned in the introduction). After accounting for exhibitor share (which goes to the cinema) and box office taxes, distributor rentals equaled about 40% of total box office gross (Cain 2012 [#]). Thus, in 2012 the Chinese government made about US$260 million on the *new* quota slots alone. These are strong grounds for hypothesizing that the Chinese government considers predicted box office when allocating quota slots.

Studio Relations

In the late 1990s several movies that negatively represented China were released in the US market by Disney, Sony, and MGM – namely *Kundun*, *Seven Years in Tibet*, and *Red Corner*. As a result, SARFT blacklisted these studios, effectively halting all of their business in China for a period of time (CITE). Conversely, IMAX, Fox, and DreamWorks Animation have recently begun producing and distributing Chinese language films as a strategy for appeasing the government's political interests (CITE). DreamWorks in particular has had consistent success in

winning quota slots since 2008, when it released *Kung Fu Panda* and shattered box office records for animated films in China. These trends suggest that the Chinese government is more or less likely to allocate quota slots to studios which have comparatively positive or negative relationships with the government.

Black-Outs and Competitive Release-Scheduling

Some further information about China's regulatory framework is required to understand and interpret peculiarities in the data set, which we describe in further detail in section V. In addition to import quotas, China periodically institutes "black-outs" – periods during which certain movies are pulled from cinema screens. A black-out usually persists for one to three months. It is intended to increase domestic movies' market share and box office, especially during holiday seasons and the summer months, when cinema traffic peaks (Frater, 2007; Cain, 2012 [#]). There are two notable examples of this policy. In January 2010, the top-performing movie at China's box office, *Avatar* (2009), was blacked-out to prevent direct competition with *Confucius* (孔子, 2010). In 2011, when *The Beginning of the Great Revival* (建黨偉業) was released to commemorate the Communist Party's ninetieth anniversary, the government bumped *Transformers* and *Harry Potter* from screens (Berry, 2012). June has been called "national film protection month" due to consistent summer black-outs year after year (Frater, 2007; Yu 2007).

China also limits the commercial success of Hollywood summer blockbusters by forcing similar movies to the same opening weekend. Last July *The Dark Knight Rises* was pitted against *The Amazing Spider-Man* (2012) in early September after the two films' Chinese releases had already been delayed by the two-month long summer blackout (Cain, 2012). The same thing happened to *Dr. Seuss' The Lorax* (2012) and *Ice Age: Continental Drift* (Fritz, Horn, & Lang, 2012). Hollywood studios collaborate stateside to avoid head-to-head opening weekends of

similar movies whenever possible in order to give each film a temporary monopoly on the market for their particular genre, thereby maximizing both films' market shares and revenue (Epstein, 2012). These policies explain why Hollywood movies that rank first or second at the Chinese box office in one week may sometimes disappear off the top 10 charts completely the next week. It also explains why some films that experience strong opening weekends in the United States and Hong Kong may have a comparatively muted debut in China. This should not distort my results because I am using cumulative box office figures, not weekly box office.

III. Literature Review

Most existing analysis of Hollywood films in foreign markets is related to predicting foreign box office revenue based on a combination of cultural and economic variables. Studies such as Marvasti and Canterbery (2005) and Hennig-Thurau, Walsh, and Bode (2004) point to domestic box office, genre, starpower, awards, release lag time, and MPAA ratings as relevant variables in measuring a Hollywood movie's success overseas. Wildman (1994) emphasized the audience's familiarly with the language spoken in a film. Hanson and Xiang (2008) likewise analyzed language as a variable in their Melitz model for international trade in motion pictures. Lee (2006, 2008) found that the action, science fiction, and thriller movie genres were more translatable than others across cultures and hence more successful in East Asian box offices while comedy was least translatable. Lee also found that more culturally-specific "drama" (versus "non-drama") Academy Award nominations[4] negatively impacted a Hollywood film's box office revenue in nine East Asian countries (2009).

Additionally, some studies have included Hofstede's dimensions of national culture to model cultural discounting. Hoskins and Mirus (1988), Wildman (1995), and Wildman and Siwek

[4] The author defined non-dramatic awards as those related to the musical, visual, and technical aspects of the movie. Dramatic awards were related to the plot and acting.

(1988) first articulated cultural discount theory to explain the value lost when a media product is sold in a market whose culture significantly differs from that of the producing market. Lee (2009), Fu and Lee (2008), Oh (2001), and Kogut and Singh (1998) used Hofstede's dimensions of national culture to define a framework for measuring cultural distance, defined as the degree of cultural difference between two countries. These dimensions are: power distance, uncertainty avoidance, individualism versus collectivism, masculinity versus femininity, long-term verses short-term orientation, and indulgence versus restraint (Hofstede 1980; 2001).[5]

In addition to cultural factors, Elberse and Eliashberg (2003) and DeVany and Walls (2003) find domestic box office strongly predicts foreign box office. This is because a strong performance at the domestic box office signals quality. The impact of America's domestic market size on Hollywood's global success has been examined by Hoskins, McFayden, and Finn (1997), Hoskins, Mirus and Rozeboom (1988), Pool (1977), and Wildman and Siwek (1988). Predictive models for foreign box office revenue are virtually all adaptations of models first articulated to predict domestic box office (Einav 2007; Litman 1983; Litman & Ahn 1998). Fu and Lee (2008) found that a foreign movie's success in Singapore's box office could be predicted based on the cultural distance between the two countries in conjunction with box office in the movie's country of origin. Lee (2006) also found that box office figures in culturally similar foreign markets (i.e. Hong Kong and Singapore) are correlated.

IV. Cultural Discount Theory and Theories for Hollywood Dominance

Cultural Discount Theory

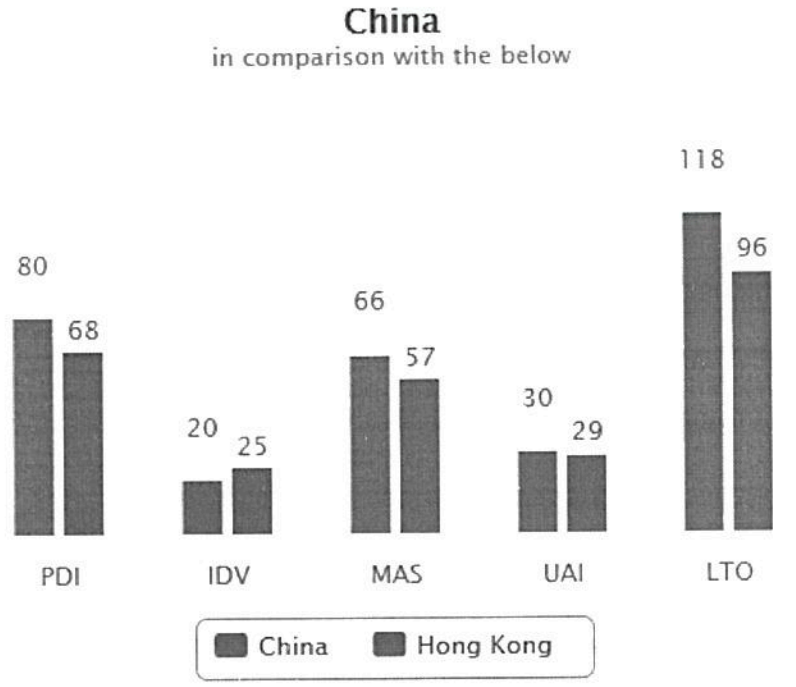
Cultural discount theory predicts that when a media product moves across cultural boundaries its value is "discounted," or diminished (Lee 2009). The larger the cultural distance

[5] The studies cited here disregard long-term verses short-term orientation and indulgence versus restraint due to a lack of data at their time of writing.

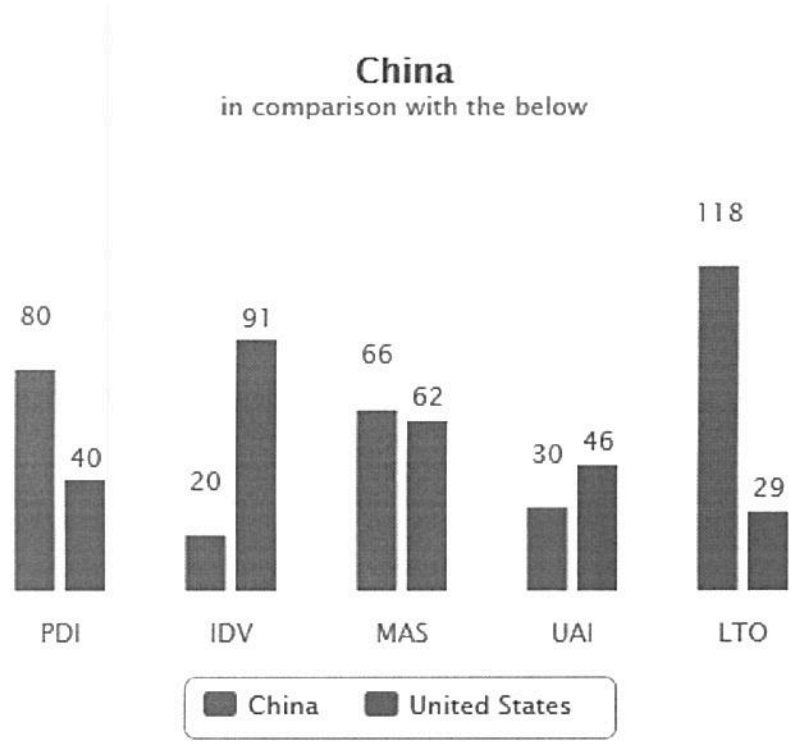
between the exporting and importing country, the less valuable the importing country will find the product. This cultural distance is gauged by metrics such as "style, values, beliefs, institutions, and behavioral patterns of the material in question," in addition to language (Hoskins & Mirus 1988). In economic analyses of motion pictures, cultural discounting has been captured by variables such as critical awards (Lee, 2009) and genres (Lee, 2006; 2008). Comedies are culturally discounted because humor is culturally specific, while action movies tend to experience less discounting because they contain little culturally-specific content. By this logic, certain genres should generate higher revenue than others in China's film market and thus have a higher probability of receiving a Chinese import quota slot.

As I mentioned in the literature review, Hofstede's national culture dimensions have been used to quantifiably measure cultural discounting. Since my model includes only two countries (the US and China) this variable would have no impact in regression. However, I use Hofstede's index to motivate the inclusion of Hong Kong box office revenue as an independent variable in my analysis. Hong Kong and China are culturally very similar, as the below chart shows, but Hong Kong does not have an import quota or censorship system for Hollywood movies and they annually import far more than China. Thus, Hong Kong box office revenue predicts the box office revenue a film would earn were it released in China.

Figure 1: Geert-Hofstede Dimensions for China, Hong Kong, and the United States



The above graph compares values for China and Hong Kong on power distance index (PDI), individualism (IDV), masculinity/femininity (MAS), uncertainty avoidance (UAI), and long-term orientation (LTO). These two national cultures are quite similar. Given Hong Kong's prior and current status as a Chinese territory, this is unsurprising.



The above graph compares values for China and the United States on power distance index (PDI), individualism (IDV), masculinity/femininity (MAS), uncertainty avoidance (UAI), and long-term orientation (LTO). These two national cultures are quite different. Again, this is unsurprising given the different political structures and histories of the two countries.

Hollywood Dominance of the Global Film Market

Contrary to expectation, cultural discount theory does not contradict the observed reality of US film dominance in foreign box offices. This is because cultural discounting benefits producers in large markets like the US. Large markets experience relatively small losses from cultural discounting in contrast to producers in small markets, whose base of domestic customers (i.e. those not experiencing a discount) is far smaller. In other words, Hollywood's wealthy domestic consumer base generates large box office revenues that are then invested in producing increasingly high-quality films. These Hollywood films, in turn, are selected for import by foreign markets because they are technically and qualitatively superior to competitors from other

countries. Additionally, as can be inferred from the US Trade Representative's 2007 case against China, the dominance of Hollywood films has been perpetuated by the MPAA's aggression in protecting its interests overseas (Guback, 1969; Seagrave, 1997). Several other reasons for Hollywood's global success have been summarized in Jayakar and Waterman (2000), but the two mentioned here (Hollywood's large home market and industry advocacy) are the most important for my analysis. These factors motivate the inclusion of us box office as an independent variable in my empirical model.

V. Data

The Data Set

This analysis uses data on US-produced films screened in US cinemas in 2012. The dataset is built from four primary sources: boxofficemojo.com, filmratings.com (maintained by America's Classification and Ratings Administration, or CARA), Enbase (maintained by EntGroup, a Beijing-based consulting firm), and chinafilmbiz.com. Previous studies have used boxofficemojo.com as a data source (Lee 2008; Lee 2009). 659 films were released in US theaters in 2012. Of these, 129 were also released in Hong Kong. I exclude films not produced by a US studio, leaving a total of 516 films in the dataset. Film title is the observational unit for all regressions and box office figures are reported throughout in millions of 2012 US dollars.

Dependent variables – revenue_sharing and enter_china

Because the Chinese government does not publish lists of quota slot allocations, I used a combination of sources including chinafilmbiz.com, Enbase data, and boxoffice.com to identity imported films. Working from the lists published by Cain and firedeep[6], I verified that each movie's country of origin was not China using the Internet Movie Database (IMDB), then

[6] See appendix 2 for these lists.

created the binary variables *revenue_sharing* and *flatfee* in Chinese box office data from Enbase equal to one based on the type of the films' quota slot. I also created *enter_china*, which simply identifies whether a given film received either type of quota slot. *revenue_sharing* has a value of one for 30 observations and *enter_china* has a value of one for 44 observations. These films represent those films from the pool of "US films released in the US in 2012" that were also screened in China. Revenue-sharing films from countries outside of the US were dropped, as were films that had a 2011 US release but did not screen in China until 2012.

Independent variables

Economics variables

Cumulative US box office and Hong Kong box office by film were obtained from boxofficemojo.com. Since box office figures are highly skewed with a small number of blockbusters generating comparatively huge revenue, I log-transformed the box office variables to create *log_us_bo* and *log_hk_bo*. This is in keeping with past research (Lee, 2009).

Cultural variables

I created nine genre dummy variables from boxofficemojo.com corresponding to action, adventure, comedy, drama, family, horror, romance, science fiction, and thriller. Individual films may belong to multiple genres. I also created dummy variables for each film's MPAA rating: *g*, *pg*, *pg13*, and *r*. Data on MPAA rating was obtained from filmratings.com.

Political variables

To reflect the various political motivations described in 'Background,' I created dummy variables corresponding to the six major and three minor Hollywood studios. Studio data was taken from boxofficemojo.com. I also created four dummy variables that reflect the presence of keywords signaling offensive content in MPAA rating descriptions: *tag_violence, tag_subabuse,*

tag_language, and tag_vulgarcontent. *tag_violence* has a value of one when key words and phrases such as "martial arts violence," "gore," or "brutal" are present in the film's rating description. *tag_subabuse* takes a value of one when a film contains drug use, alcohol, or smoking. I also included films rated for gambling in the substance abuse tag since gambling is mentioned in conjunction with drug use in the SARFT 2008 circular. *tag_language,* as the name suggests, indicates movies with swearing and profanity. *tag_vulgarcontent* indicates sexual content, nudity, and crude humor. I group keywords in this particular way to reflect how the Chinese government groups offensive content that would prevent a film from screening in Chinese theaters according in its 2008 SARFT circular (see Appendix 1 for the full text).

Data Sources and Limitations

Enbase is an online subscription database maintained by Beijing's EntGroup, Inc., a consulting firm that specializes in the Chinese movie industry. *Variety*, Hollywood's trade magazine, pulls its data on China's movie market from Enbase. To the best of my knowledge this database has not been used previously in scholarly research, but EntGroup's client profile, which includes four of the six major Hollywood studios (Warner Bros, Fox, Paramount, and Sony), major Chinese studios and distributors (China Film Group, Bona, PolyFilm), and international firms like JP Morgan and Ogilvy, suggests data reliability. This database has two strong advantages. First, it maintains up-to-date data on individual films' box office performance, including domestic Chinese films and imports from countries besides the US. Second, it has detailed information on distributors and producers, which provides insight into co-production partnerships and the unique trade restrictions placed on the US versus those placed on other countries (such as Hong Kong[7] or Korea).

[7] A note on Hong Kong: though the city returned to mainland China's control in 1991, for the purposes of film trade Hong Kong is still treated as an external entity the way the US or France would be treated. This means Hong Kong

Chinafilmbiz.com is a blog maintained by Rob Cain of Pacific Bridge Pictures, a US-based consulting firm on China's film market for Hollywood studios. Pacific Bridge Pictures also maintains a clientele list which includes Hollywood studios (Universal, Sony, MGM) and China Film Group. While most of Cain's blog posts are discursive observations about trends or events relevant to the Chinese film industry, these are often supplemented by graphs and tables that report market share or box office. I use one such table from Cain's post "Handicapping China's 2012 Import Quota Slot Derby" which reports the titles and box office figures of revenue-sharing films for 2012. This list was verified against Enbase's data on box office and country of origin. There was a maximum difference of less than US$2 million between Cain and Enbase's figures, which attests to the former's accuracy. Cain, in turn, cites firedeep as a personal contact within China's film industry. Firedeep's list of revenue-sharing films matches data from both Cain and Enbase, and where country of origin data is not missing from Enbase the flat fee list is also corroborated.

The CARA data contains all movies which have been reviewed and rated by the MPAA between in 2012 and the variables film title, year made, rating, reasons for rating, and two variables indicating special ratings procedures (i.e. re-ratings or suspensions). The data set contains n=799 observations for 2012. MPAA membership guidelines require member studios to submit films for rating, so virtually all Hollywood blockbusters are rated. Underrepresentation of documentary and independent studio films is irrelevant to my analysis since none of these types of films entered China in 2012.

The main limitation of my data is the small number of observations that successfully entered China. This could be addressed by expanding the timeframe of analysis to include years prior to

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films are subject to the foreign film import quota. In practice, however, Hong Kong circumvents the quota barrier by co-producing a large number of films with China.

2012, but Enbase's Chinese box office data is only publicly accessible back to October 2011. They offer more extensive data through a paid subscription service. Another limitation is the lack of quantifiable data on how China and Chinese culture is represented in individual films. Generating variables that capture representation would require either a complete database of scripts or first-hand research on all 516 films in the dataset, both methods which are far beyond the scope of this project.

There are several outliers among films released in the Chinese market that will likely affect results. For example, only three revenue-sharing films are classified in the romance genre, but of these three *Titanic* was the number one highest-grossing film at China's box office. DreamWorks Pictures has been allocated a quota slot for virtually all of its animated blockbusters over the past two years. However, since the number of Hollywood films entering China's market is already so small, dropping these observations could simply skew results in a different direction.

VI. Model and Empirical Specifications

In the introduction I hypothesized that the Chinese government allocates quota slots based on 1) predicted Chinese box office revenue, 2) the absence of obscene or offensive content, 3) the film's producing studio, and 4) the positive portrayal of China and Chinese values/culture. Due to limited data I am unable to include variables that measure if and how China is represented, so the following regressions only take predictors of Chinese box office, offensive content, and studio into account.

Probability of Entrance.

I perform six probit regressions to identify how variables influence an individual film's probability of entering the Chinese market. In the first two r*evenue_sharing* and *enter_china* are each regressed on *log_us_bo*, *log_hk_bo*, genre, MPAA rating, the four *tag_* variables for

content, and producing studio. The remaining four regressions are variations of the first two, where I omit select independent variables to gauge the effect of correlation between different variable groups.

The variables *log_us_bo*, *log_hk_bo*, genre, and MPAA rating capture predicted Chinese box office. MPAA content variables indicate a film's compliance with SARFT's 2008 circular. The studio variable captures the effects of a studio's relationships with the Chinese government. G-rated films and the variable *g* were dropped from the model because a G rating perfectly predicted failure. Likewise, *studio_dreamworks* was dropped because it perfectly predicted success.

VII. Results

In this section I present estimates of each independent variable's significance as a predictor of quota slot allocation. The two probit regressions that include all predictor variables are reported in Table 1. Column 1 contains estimated probit coefficients for a regression modeling entry into the Chinese market. The coefficients in Column 2 estimate probit coefficients for revenue-sharing movies. These probit coefficents are not estimates of partial derivatives and I will be concentrating on their signs and statistical significance in interpreting results. Standard errors are reported in parentheses beneath each coefficient. The pseudo r-squared is higher for the regression on revenue-sharing, so this is the model with the greater likelihood.

The log-transformed box office variables were positive and significant in both regressions and at different significance levels. These results demonstrate that larger grosses at the US and Hong Kong box offices increase both the probability of entering the Chinese market and of being allocated a revenue-sharing quota slot. The coefficient on Hong Kong box office is

roughly equivalent in both regressions, but US box office is a comparatively stronger predictor of revenue-sharing quota slots than of market entry. This is likely because in practice revenue-sharing quota slots are almost exclusively allocated to big-budget Hollywood blockbusters that gross high at the US box office while flat fee slots may be allocated to films by smaller independent studios. By allocating revenue-sharing slots to the highest-grossing films, the Chinese government maximizes its revenue as a film distributor.

TABLE 1

Probit Regressions Testing All Variables as Predictors of Market Entry and Receipt of Revenue-Sharing Quota

Variable	enter_china	revenue_sharing
log_us_bo	0.152*	0.901**
	(0.0826)	(0.428)
log_hk_bo	0.174***	0.133**
	(0.0385)	(0.0620)
pg	1.869**	1.688
	(0.815)	(2.933)
pg13	-0.243	0.179
	(0.822)	(3.276)
r	-0.0654	0.861
	(0.875)	(3.300)
tag_vulgarcontent	0.365	-0.0391
	(0.485)	(0.926)
tag_violence	0.661	3.107
	(0.580)	(3.234)
tag_subabuse	-0.570	-0.564
	(0.498)	(0.925)
tag_language	-0.487	-1.294
	(0.498)	(0.799)
g_action	1.216***	2.914**
	(0.422)	(1.231)
g_adventure	0.677	1.898**
	(0.698)	(0.880)
g_comedy	-0.884	-1.643
	(0.583)	(1.322)
g_drama	0.252	2.192**
	(0.448)	(1.017)
g_family	-0.443	1.869
	(0.860)	(2.973)
g_horror	-1.680*	-2.337
	(0.893)	(1.672)
g_romance	1.486**	0.955
	(0.669)	(1.170)
g_thriller	0.933**	-2.151*
	(0.438)	(1.281)
g_scifi	1.476**	-0.152
	(0.584)	(0.840)
studio_sony	0.820	0.632
	(1.023)	(1.246)
studio_warnerbros	0.964	-0.489
	(1.113)	(1.712)

studio_lionsgate	-0.100	-1.360
	(1.051)	(1.722)
studio_universal	-0.441	-1.048
	(1.037)	(1.312)
studio_paramount	1.088	2.175
	(1.183)	(1.744)
studio_fox	0.202	0.766
	(1.000)	(1.255)
studio_relativity	-0.246	
	(1.173)	
studio_minor	1.020	0.112
	(1.009)	(1.362)
_cons	-6.702***	-22.31**
	(1.813)	(8.776)
N	509	504
pseudo R-sq	0.691	0.834

* p<0.10 ** p<0.05 *** p<0.01

In terms of genre, the action genre is statistically significant and positive in both regressions. This makes sense because action movies generally have a low degree of culturally specific content. It is also possible that the 14 revenue-sharing slots reserved for IMAX and 3D movies also encourage disproportionate importation of action movies because more action movies are made in these formats when compared to films from other genres, though further analysis is needed to validate this conclusion. The only other statistically significant genre coefficient is on thriller, and it is positive as well. Thriller, like action, has low cultural content, and the two variables are correlated (see table 2).

TABLE 2

Pair-Wise Correlation between Genre and Offensive Content

	g_action	g_adventure	g_comedy	g_drama	g_family	g_horror	g_romance	g_thriller	g_scifi
g_action	1								
g_adventure	0.335***	1							
g_comedy	-0.130***	-0.0771*	1						
g_drama	-0.193***	-0.104**	-0.0159	1					
g_family	-0.0411	-0.0115	-0.0855*	-0.129***	1				
g_horror	-0.0503	-0.0562	-0.117***	-0.158***	-0.0327	1			
g_romance	-0.0624	-0.0507	0.120***	-0.104**	-0.0231	-0.0638	1		
g_thriller	0.178***	0.0711	-0.211***	-0.150***	-0.0912**	0.145***	-0.0879**	1	
g_scifi	0.286***	0.102**	-0.0504	-0.123***	-0.0513	0.0243	-0.0494	0.137***	1

tag_vulgarcontent	-0.0567	-0.0666	0.342***	0.0886**	-0.139***	0.0295	0.141***	0.0622	0.0641
tag_violence	0.252***	0.0845*	-0.103**	-0.0516	-0.0978**	0.273***	-0.0521	0.352***	0.202***
tag_subabuse	-0.0358	-0.0576	0.240***	0.0773*	-0.0829*	-0.0156	-0.0343	-0.0330	0.0442
tag_language	0.0278	-0.0812*	0.224***	0.0775*	-0.155***	0.106**	0.0306	0.120***	0.128***

* p<0.10 ** p<0.05 *** p<0.01

Other genres have significant coefficients in one regression but not the other, and notably, comedy's coefficient is not statistically significant (though the sign is still negative in both regressions). As stated in the Data section, these discrepancies are likely due to the small number of observations where successful market entry and/or receipt of revenue-sharing quota occurred with a probability of one, which is in turn a result of the limited timeframe of this experiment.

Similarly, these results do not report studio as a significant predictor of box office revenue. But it takes longer than a year for a studio to cultivate a relationship with Chinese government censors, and the Chinese market is growing so rapidly that many studios who did not previously invest in China have yet to court censors in earnest. An expanded timeframe with more observations could improve this analysis.

As expected, none of the dummy variables for offensive content are statistically significant. Nudity, drug use, gambling, and other offensive content should not decrease the probability of market entry when this content can be edited out before the film is released, nor should it prevent a high-grossing movie from securing a revenue-sharing slot. The coefficient for violent content is actually positive and extremely large (though not significant) for revenue-sharing films; this is likely due to the fact that violence is correlated with the action genre, as demonstrated above in Table 2.

The other four probit regressions I performed are not reported here for the sake of space and because they replicate many of the inconsistencies seen above in Table 1, but there is one

key insight to be drawn from them (see Appendix 3 for a full table). When rating variables are omitted the large positive coefficient on violent content for revenue-sharing quota allocation becomes statistically significant. When content dummies are omitted the ratings pg13 and r become positive and significant. This occurs because rating, content, and the action and thriller genres are all correlated.

VIII. Conclusion

Despite the exponentially-increasing importance of the Chinese cinematic film market, the regulatory mechanisms which allocate China's import quota slots are poorly understood at best. Past studies of the East Asia film market and box office have excluded China from their analysis because data for the country is scarce. This study has proposed a model for the allocation of import quotas in which the probabilities of a film entering the Chinese market and the probability of being allocated a revenue-sharing slot in particular are predicted by factors related to four main considerations: predicted Chinese box office, film content, studio relationships, and depictions of China or Chinese culture when choosing films to import. I merge 3 data sets for the year 2012 to build a dataset containing all US-made films released in US theaters in 2012. I also create two variables for entry into the Chinese market and allocation of a revenue-sharing import quota based on lists of imported movies provided by market consultants. These two variables are then regressed in several probit models, using US box office, HK box office, MPAA rating, variables that reflect offensive content, genre, and studio. Of these, only three variables related to the prediction of box office revenue are found to be consistently significant: US box office, Hong Kong box office, and the action genre. All three increase the probability of both market entry and receipt of a revenue-sharing slot. Though the Chinese government is aggressively protectionist in its regulatory framework, profit incentive appears to

be the strongest motivator underlying its behavior. It is unlikely to break its monopoly on the distribution of imported films even under threat of WTO action.

This study's most serious limitation is data availability. When there are as few observations for which the dependent variable has a probability equal to one as in this study, outliers bias coefficients on dependent variables. In light of this, the consistently significant coefficients on log-transformed box office variables and the action genre are actually quite remarkable. Future research can improve on this analysis by expanding the timeframe of the data to span several years. A 2008-2012 inclusive study will yield data on a little less than 100 revenue-sharing movies and twice as many flat fee imports.

Another phenomenon that warrants further investigation is the sudden catapult of domestic Chinese movies to the top of Chinese box office charts in January 2013. Chinese domestic movies like Jackie Chan's *CZ12*, *Lost in Thailand*, and Stepen Chow's *Journey to the West* captured a staggering 90 percent of Chinese box office in February 2012 (Cain 2013 [#]).Other research (Lee 2002; Waterman & Jayakar 2000) has shown that for foreign markets, the percentage of box office captured by US movies is directly related to the ratio of the US market size to the importing country's market size. A comparison of growth in China's total box office revenue with government policies like competitive release scheduling would reveal a richer picture of whether free trade or protectionism increases domestic films' market shares.

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Appendix 1: SARFT's 2008 Film Censorship Guidelines

Films containing any of the following content must be cut or altered:
(1) Distorting Chinese civilization and history, seriously departing from historical truth; distorting the history of other countries, disrespecting other civilizations and customs; disparaging the image of revolutionary leaders, heroes and important historical figures; tampering with Chinese or foreign classics and distorting the image of the important figures portrayed therein;
2) Disparaging the image of the people's army, armed police, public security organ or judiciary;
(3) Showing obscene and vulgar content, exposing scenes of promiscuity, rape, prostitution, sexual acts, perversion, homosexuality, masturbation and private body parts including the male or female genitalia; containing dirty and vulgar dialogues, songs, background music and sound effects;
(4) Showing contents of murder, violence, terror, ghosts and the supernatural; distorting value judgment between truth and lies, good and evil, beauty and ugliness, righteous and unrighteous; showing deliberate expressions of remorselessness in committing crimes; showing specific details of criminal behaviours; exposing special investigation methods; showing content which evokes excitement from murder, bloodiness, violence, drug abuse and gambling; showing scenes of mistreating prisoners, torturing criminals or suspects; containing excessively horror scenes, dialogues, background music and sound effects;
(5) Propagating passive or negative outlook on life, world view and value system; deliberately exaggerating the ignorance of ethnic groups or the dark side of society;
(6) Advertising religious extremism, stirring up ambivalence and conflicts between different religions or sects, and between believers and non-believers, causing disharmony in the community;
(7) Advocating harm to the ecological environment, animal cruelty, killing or consuming nationally protected animals;
(8) Showing excessive drinking, smoking and other bad habits;
(9) Opposing the spirit of law.

Taken from Cain (2011); see Works Cited.

Appendix 2: Revenue-Sharing and Flat Fee Movies for 2012

2012 Foreign Revenue Sharing Films Gross in China

Rank	Tittles	Countries	Studios	Box Office Gross (M/$)	Release Dates
1	**Titanic 3D (3D)**	US	FOX	154.9	Apr 10
2	**Mission Impossible 4**	US	Paramount	107.8	Jan 28
3	**Marvel's The Avengers**	US	Disney	91.4	May 05
4	**Life of Pi (3D)**	US	FOX	91.0	Nov 22
5	**Men in Black 3**	US	Sony	82.4	May 25
6	**Ice Age 4 (3D)**	US	FOX	72.7	Jul 27
7	**Journey 2 (3D)**	US	WB	61.5	Feb 10
8	**The Dark Knight Rises**	US	WB	55.4	Aug 27
9	**The Expendables 2**	US	LGF	53.6	Sep 04
10	**The Amazing Spder-Man (3D)**	US	Sony	51.1	Aug 27
11	**Battleship**	US	Universal	50.2	Apr 18
12	**John Carter**	US	Disney	41.9	Mar 16
13	**Prometheus (3D)**	US	FOX	35.8	Sep 02
14	**The Bourne Legacy**	US	Universal	35.5	Oct 25
15	**Madgascar 3 (3D)**	US	Paramount	34.1	Jun 08
16	**Sherlock Holmes 2**	US	WB	29.6	Jan 15
17	**The Hunger Games**	US	LGF	28.7	Jun 14
18	**Wrath of the Titans (3D)**	US	WB	26.1	Mar 30
19	**Looper**	US	FD	20.8	Sep 28
20	**Total Recall**	US	Sony	19.0	Oct 19
21	**War Horse**	US	Disney	18.8	Feb 28
22	**Taken 2**	US	FOX	18.7	Oct 07
23	**Wreck It Ralph (3D)**	US	Disney	10.5	Nov 06
24	**Happy Feet 2 (3D)**	AU	WB	8.2	Feb 21
25	**The Pirates! Band of Misfits (3D)**	UK	Sony	5.8	Jun 01
26	**The Twilight Saga: Breaking Dawn - Part 1**	US	LGF	5.3	Oct 23
27	**Brave (3D)**	US	Disney	4.4	Jun 19
28	**Rise of the Guardians (3D)**	US	Paramount	4.3	Nov 16
29	**Hugo (3D)**	US	Paramount	3.3	May 31
30	**This Means War**	US	FOX	2.7	Jun 16
31	**Dr. Seuss' The Lorax (3D)**	US	Universal	2.1	Jul 27
32	**Anna Karenina**	UK	Universal	2.1	Oct 16
33	**Deranged**	SK	N/A	1.2	Dec 06
34	**Un bonheur n'arrive jamais seul**	FR	N/A	0.4	Nov 27
	Total Films Counted:	34			

Total Gross:	1231.3
Revenue Sharing Films Combined Yearly Market Share:	45.6%

2012 Foreign Buyout Films Gross in China

Rank	Tittles	Countries	Box Office Gross (M/$)	Release Dates
1	**Bait (3D)**	AU	25.7	Oct 12
2	**The Mechanic**	US	14.6	Aug 02
3	**Late Autumn**	SK	10.2	Mar 23
4	**Ghost Rider 2**	US	9.2	Apr 20
5	**Abduction**	US	8.3	Jul 27
6	**Mirror Mirror**	US	7.1	Jun 01
7	**Conan the Barbarian**	US	6.7	Feb 26
8	**The Three Musketeers**	GE	6.5	May 15
9	**The Grey**	US	6.1	May 18
10	**Lock-out**	FR	5.6	Aug 07
11	**Killer Elite**	US	5.1	Feb 17
12	**Blitz**	UK	4.8	Mar 16
13	**The Nutcracker in 3D**	UK	4.3	Jan 17
14	**Spy Kids 4**	US	4.2	Mar 06
15	**Le Voyage extraordinaire de Samy**	SP	4.0	Sep 30
16	**Urutoraman zero the movie**	JP	3.1	Jul 12
17	**R.T.T.**	FR	2.6	Apr 12
18	**The Woman in Black**	UK	2.5	Sep 20
19	**Derrière les murs**	FR	2.5	Oct 30
20	**The Expatriate**	CA	2.1	Oct 31
21	**Faces in the Crowd**	CA	2.0	Nov 13
22	**Las aventuras de Tadeo Jones**	SP	1.9	Sep 14
23	**New York Assassination**	US	1.9	Apr 13
24	**À bout portant**	FR	0.8	Mar 08
25	**Fortress of War**	RU	0.7	Mar 16
26	**The King's Speech**	UK	0.7	Feb 24
27	**A Separation**	IR	0.7	Nov 13
28	**The Artist**	FR	0.4	Dec 28
29	**Largo Winch 2**	FR	0.3	Feb 12
30	**Los ojos de Julia**	SP	0.3	Nov 09

31	**La proie**	FR	0.2	Feb 10
	Total Films Counted:	**30**		
	Total Gross Counted:		145.1	
	Buyout Films Combined Yearly Market Share:		5.4%	

Appendix 3: Further Probit Regressions with Some Variables Omitted

APPENDIX C : TABLE 3

Probit Regressions Testing Variables as Predictors of Market Entry and Receipt of Revenue-Sharing Quota

Variable	enter_china	enter_china	enter_china	revenue_sharing	revenue_sharing	revenue_sharing
log_us_bo	0.152*	0.163**	0.160**	0.901**	0.714**	0.790**
	(0.0826)	(0.0775)	(0.0793)	(0.428)	(0.308)	(0.350)
log_hk_bo	0.174***	0.162***	0.155***	0.133**	0.125**	0.129**
	(0.0385)	(0.0343)	(0.0341)	(0.0620)	(0.0523)	(0.0602)
pg	1.869**	1.685**		1.688	1.837	
	(0.815)	(0.746)		(2.933)	(2.544)	
pg13	-0.243	0.117		0.179	1.694*	
	(0.822)	(0.485)		(3.276)	(0.939)	
r	-0.0654	0.184		0.861	2.058*	
	(0.875)	(0.430)		(3.300)	(1.051)	
tag_vulgarcontent	0.365		0.120	-0.0391		-0.180
	(0.485)		(0.413)	(0.926)		(0.864)
tag_violence	0.661		0.490	3.107		3.254**
	(0.580)		(0.392)	(3.234)		(1.454)
tag_subabuse	-0.570		-0.466	-0.564		-0.397
	(0.498)		(0.489)	(0.925)		(0.863)
tag_language	-0.487		-0.508	-1.294		-1.262
	(0.498)		(0.409)	(0.799)		(0.826)
g_action	1.216***	1.164***	1.025***	2.914**	2.060**	2.667**
	(0.422)	(0.382)	(0.382)	(1.231)	(0.825)	(1.133)
g_adventure	0.677	0.891	0.794	1.898**	1.760**	1.945**
	(0.698)	(0.657)	(0.605)	(0.880)	(0.705)	(0.832)
g_comedy	-0.884	-0.975*	-0.621	-1.643	-1.872	-1.328
	(0.583)	(0.551)	(0.522)	(1.322)	(1.154)	(1.201)
g_drama	0.252	0.263	0.240	2.192**	1.296*	2.147**
	(0.448)	(0.416)	(0.433)	(1.017)	(0.750)	(0.947)
g_family	-0.443	-0.305	1.061	1.869	0.993	3.085**
	(0.860)	(0.836)	(0.656)	(2.973)	(2.564)	(1.348)
g_horror	-1.680*	-1.419	-1.581*	-2.337	-1.615	-1.798
	(0.893)	(0.900)	(0.844)	(1.672)	(1.238)	(1.361)
g_romance	1.486**	1.502**	1.272**	0.955	1.601	0.711
	(0.669)	(0.596)	(0.612)	(1.170)	(1.000)	(1.125)
g_thriller	0.933**	0.898**	0.773*	-2.151*	-1.015	-2.018
	(0.438)	(0.421)	(0.410)	(1.281)	(0.804)	(1.229)
g_scifi	1.476**	1.245**	1.384**	-0.152	-0.314	-0.116
	(0.584)	(0.561)	(0.548)	(0.840)	(0.751)	(0.854)
studio_sony	-0.200	-0.256	-0.243	0.520	0.200	0.442
	(0.614)	(0.594)	(0.600)	(0.949)	(0.790)	(0.906)
studio_warnerbros	-0.0563	-0.190	-0.175	-0.601	-0.241	-0.379
	(0.714)	(0.644)	(0.659)	(1.541)	(1.065)	(1.391)
studio_disney	-1.020	-0.799	-1.225	-0.112	0.157	-0.622
	(1.009)	(0.957)	(0.884)	(1.362)	(1.048)	(1.222)
studio_lionsgate	-1.120	-1.041*	-1.104*	-1.472	-1.170	-1.471
	(0.685)	(0.632)	(0.650)	(1.567)	(1.105)	(1.573)
studio_universal	-1.461*	-1.373**	-1.387*	-1.160	-0.853	-1.360
	(0.763)	(0.699)	(0.741)	(1.204)	(0.940)	(1.232)
studio_paramount	0.0679	-0.0739	0.205	2.062	0.744	1.885
	(0.827)	(0.852)	(0.889)	(1.553)	(1.069)	(1.556)
studio_fox	-0.818	-0.674	-0.662	0.654	0.623	0.429
	(0.701)	(0.657)	(0.667)	(1.035)	(0.926)	(0.941)
studio_relativity	-1.266	-1.019	-0.829			
	(0.870)	(0.808)	(0.765)			
_cons	-5.682***	-5.703***	-5.332***	-22.20***	-17.66***	-19.60***
	(1.260)	(1.176)	(1.126)	(8.589)	(5.796)	(6.776)

N	509	509	513	504	504	508
pseudo R-sq	0.691	0.674	0.668	0.834	0.795	0.828

* p<0.10 ** p<0.05 *** p<0.01