

CULTURAL DISTANCE IN INTERNATIONAL FILMS: AN EMPIRICAL INVESTIGATION IN TAIWAN

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Abstract - Cultural products and services are created to cater to markets made up of cultural consumers. By using Hofstede's research on the dimensions of national culture, the cultural distances (CDs) between Taiwan and each of 36 countries from which she imports such products and services were measured. Data on 3,075 movies' box office revenues and film characteristics from January 2013 to December 2015 were collected. The analysis shows that not only do Hollywood movies dominate the Taiwanese market, but the return to CD decrease when an imported movie's CD becomes larger. The effects decline at a decreasing rate. The hypothesis of cultural discounts and the U-shaped impact of inter-country CD on global cultural products are both supported. Action, science-fiction, and sequel movies during the Chinese New Year make more money. A change in box office revenue from the highest CD to the lowest CD would result in a loss of over 1.12 million US dollars.

Keywords - box office revenues, cultural distance, Hollywood movies.

I. INTRODUCTION

The subject of transnational flows and the use of audiovisual products is important to both scholars and policy-makers in the industry. The ecology of foreign media consumption has cultural, social, and even political implications, and hence has inspired a great amount of research work on these issues. In international trade, audiovisual products—typically motion pictures and television programs—are transacted in ways that do not differ economically from other goods. Even so, their consumption is essentially a cross-cultural phenomenon. As discussed below, culture and economics are commonly discussed in the analysis of consumption in the motion picture industry. National consumer preferences are driven by particular economic conditions and cultural interactions between product-producing and product-consuming countries (Ashraf, Thongpapanl, & Auh, 2014). Accordingly, multinational companies want to raise their cultural intelligence in understanding local consumers' preferences to develop their product design, launch, and promotion strategies. In particular, such subtle cultural nuances are better examined when considering cultural products. That is, such products feature embedded cultural content that serves as a strong and relevant factor for consumers' purchase decisions. Scott (2004, p. 462) defines cultural products as "service outputs that focus on entertainment, edification, and information. Goods like motion pictures, recorded music, print media, museums and manufactured products through which consumers construct distinctive forms of individuality, self-affirmation and social display, like fashion clothing and jewelry, are examples. The objective of this paper, therefore, is to estimate how much the consumption decisions of

cultural products depend on the cultural discount. The cultural discount is measured by Hofstede's (2001) cultural index. The relationship between the cultural discount and box office revenue was investigated based on the revenues and characteristics of 3,075 movies from 2013 to 2015, and the results support the hypothesis of there being a cultural discount. Our research contributes to a more sophisticated understanding of movie success factors in an intercultural context, which has focused on Hollywood movies in the Taiwanese movie market. The study proposes a comprehensive quantitative method to bridge this gap in the current literature on cultural and media economics.

II. REVIEW OF THE LITERATURE ON FILM PERFORMANCE IN THE MOTION PICTURE INDUSTRY AND THE ROLE OF CULTURAL DISTANCE

There is a large literature on the determinants of film performance. In recent years, economic studies have been conducted on a variety of issues, including the effects of seasonality and competition on box office revenues and release timing decisions, and the effects of user reviews and word-of-mouth on box office revenues (e.g., Hsu & Jane, 2016; Moul, 2007). The key movie characteristics that influence the reception of a motion picture based on its potential audience also include the movie's genre, its style, its level of symbolicity, and the starpower of the movie. A few papers have analyzed other factors, such as a movie's script, and advertising. Researchers have long tried to uncover the role of cultural factors in consumer behavior in various domains, such as product development (Nakata & Sivakumar, 1996), customer loyalty (Thompson & Chmura, 2015), international

marketing channels (Hoppner & Griffith, 2015), word-of-mouth referrals (Bikhchandani, Hirshleifer, & Welch, 1992), and price fairness perceptions (Bolton, Hean & Alba, 2010). Understanding the impact of culture on the effectiveness of consumer behavior is especially important for firms that produce offerings that are rich in cultural content in the motion picture industry. Culture impacts a movie's box office in different ways. First, a country's culture influences the consumer's perception of these movie characteristics, which results in an indirect impact of culture on the movie box office. Secondly, the awards a movie receives (e.g., Nelson, Donihue, Waldman, & Wheaton 2001) and its certification (i.e., ratings by the Motion Picture Association of America; Prag and Casavant, 1994) as movie-related concretizations of a specific culture also influence box-office success. Therefore, a movie's perception by foreign consumers is not only influenced by the movie itself and the respective foreign country's market and culture, but also by the movie's success in its home country.

III. BACKGROUND, EMPIRICAL METHODOLOGY, AND DATA

People in some cultures are more likely to accept the consumption of international movies than others. The argument that culture shapes individual behavior is not new. For instance, Weber (1958) saw economic behavior as a function of religious culture. One of the most comprehensive projects on cultural difference relates to Hofstede's research on the dimensions of national culture (Hofstede, 2001; Hofstede, Hofstede, & Minkov, 2010). The empirical methodology utilized in this paper involves a simple test of a cultural difference phenomenon commonly known as the culture discount in movie consumption (Lee, 2006). The concept of a cultural discount was originally utilized in media economics and was developed by Hoskins and Mirus (1988). The box-office (BO) revenue model for film i can be expressed by equation (1).

$$BO_i = \beta_0 + \beta_1 CD_i + \Psi MTS_i + \Pi Other_i + \varepsilon_i, \quad (1)$$

where β_s , Ψ and Π are parameters. CD denotes the i^{th} film's cultural distance, and MTS is the i^{th} film's theater schedule. $Other$ refers to the metric of control variables. ε_i is the disturbance term with mean zero and finite variance. The movie theater schedule (MTS) was measured by a dummy for the Chinese New Year (CNY) and a dummy for the summer vacation (SV). They are the proxy variables of the release dates. Similar to the analysis in Einav (2007), genre and content were coded using dummy variables in the regressions. Therefore, the control variables denoted by X_s are movie characteristics, which include dummies for the adaptation, sequel, genre, and content categories. We quantified the inter-nation CD using Hofstede's (2001) cultural index. Hofstede classifies national cultures according to the dimensions of power distance (PDI), individualism/collectivism (IDV/COL), masculinity/femininity (MAS/FEM), and uncertainty avoidance (UAI). Kogut and Singh (1988) developed a cultural distance index that is based on Hofstede's four-dimensional framework. According to their formula, the cultural distance (CD) between any country and Taiwan can be calculated by the following equation:

$$CD_j = \sqrt{\frac{1}{4} \sum_{k=1}^4 \{(I_{kj} - I_{kt})^2 / V_k\}}, \quad (2)$$

where I_{kj} is the k^{th} CD for country j , and I_{kt} is the k^{th} CD for country t (Taiwan). k consists of the four-dimensional indexes which include PDI, IDV/COL, MAS/FEM, and UAI. V_k is the variance for each index. Take Big Hero 6 as an example, which is a 2014 American 3D computer-animated superhero-comedy film produced by Walt Disney Animation Studios and released by Walt Disney Pictures. The film's cultural distance from the country of origin to Taiwan is 3.34 with differentials in PDI (=0.19), IDV/COL (=2.66), MAS/FEM(=0.2), and UAI (=0.3). The cultural distances from the country of origin to Taiwan are listed in Table 1.

Table 1: Cultural Distance from Taiwan

Country of Origin	pdi	idv	mas	uai	CD
Argentina	0.05	0.41	0.08	0.16	0.7
Australia	0.28	2.59	0.17	0.18	3.23
Austria	1.28	0.7	0.79	0	2.76
Belgium	0.03	1.64	0.06	0.35	2.07
Brazil	0.07	0.21	0.01	0.03	0.32
Canada	0.21	1.93	0.03	0.25	2.42
Chile	0.01	0.02	0.2	0.16	0.39
China	0.28	0	0.3	0.85	1.44
Denmark	0.92	1.58	0.57	1.19	4.26

Finland	0.36	1.03	0.25	0.06	1.69
France	0.06	1.42	0	0.16	1.64
Germany	0.31	1.22	0.3	0.01	1.83
Hong Kong	0.06	0.03	0.1	0.9	1.08
India	0.21	0.47	0.08	0.47	1.23
Italy	0.04	1.69	0.43	0.02	2.18
Japan	0.01	0.41	1.7	0.3	2.42
Mexico	0.31	0.08	0.39	0.09	0.87
Netherlands	0.23	1.93	0.65	0.14	2.96
New Zealand	0.75	1.87	0.12	0.22	2.96
Norway	0.42	1.31	0.93	0.2	2.87
Palestine	1.94	0.14	1.38	2.67	6.13
Poland	0.06	0.9	0.25	0.32	1.53
Romania	0.59	0.08	0.01	0.25	0.93
Russia	0.71	0.24	0.06	0.38	1.38
Saudi-Arabia	0.79	0.03	0.15	0.07	1.04
Singapore	0.15	0	0.01	2.09	2.24
South Korea	0	0	0.02	0.14	0.17
Spain	0	0.56	0.01	0.16	0.73
Sweden	0.42	1.42	1.09	0.9	3.82
Taiwan	0	0	0	0	0
Thailand	0.02	0	0.08	0.01	0.12
Turkey	0	0.83	0.03	0.05	0.91
United Kingdom	0.31	2.52	0.3	0.65	3.77
United States	0.19	2.66	0.2	0.3	3.34

In this study, data for the box-office revenue and characteristics of 1,088 movies in Taiwan from January 2013 to December 2015 were collected. As mentioned in the previous section, the decision to import films was based on a non-random process, and thus 2,087 Hollywood movies, which were not imported into Taiwan during this period, are included in the dataset in order to correct for the sample selection problem. The data on American movies were obtained from Box Office Mojo, a web site that maintains movies' characteristics and box office records from the Motion Picture Association of America (MPAA). Data sources also include Cinema Year Book in the Republic of China and the websites related to Internet Movie Database (IMDb), Yahoo! Movies, taiwancinema.com, atmovies.com, and truemovie.com. Cultural distance is measured by Hofstede (2001).

Table 2 presents the definitions of the variables and descriptive statistics for the data. The average movie's box-office revenue was 0.34 million US dollars (10.5 million NT dollars). The movie with the largest

box-office receipts was Jurassic World in 2015, with its revenue reaching 9.09 million US dollars (277.96 million NT dollars). The average film's cultural distance from the producing countries to Taiwan was 2.48. The largest cultural distance in our sample was 6.13, and the producing country was Palestine. Specifically, based on Hofstede's four-dimensional framework, the country with largest power distance from Taiwan is Palestine (1.94), and the country with the largest degree of individualism compared to Taiwan is the United States (2.66). The country with the largest degree of masculinity compared to Taiwan is Japan (1.7), and the country with the largest degree of uncertainty avoidance compared to Taiwan is Palestine (2.67).

As for the movies' characteristics in the samples during this period, 13% were comedy, 8.5% were action, 6.1% were horror, 3.4% were science fiction, and 4.7% were sequel movies. 10.1% were intended for general audiences, 21.6% required parental guidance, and 33.5% required parental guidance for children under 13. 1% of movies covered the Chinese

New Year and 23% of movies covered the summer vacation. The remaining statistics are shown in Table 2.

Table 2 Descriptive Statistics of the Data (n=3,175).

Variable	Description	Mean	Std. Dev.
BO a	Box-office revenue	1.05e+07	2.65e+07
CD	Film's cultural distance from Taiwan	2.47566	1.08506
Pdi	Power distance	0.17888	0.16045
Idv	The degree of individualism	1.74923	1.02222
Mas	The degree of masculinity	0.25537	0.36713
Uai	The degree of uncertainty avoidance	0.30253	0.23050
comedy	Dummy of comedy (yes=1, otherwise=0)	0.12598	0.33188
action	Dummy of action (yes=1, otherwise=0)	0.08535	0.27945
horror	Dummy of horror (yes=1, otherwise=0)	0.06142	0.24013
romance	Dummy of romance (yes=1, otherwise=0)	0.02425	0.15386
Science fiction	Dummy of science fiction (yes=1, otherwise=0)	0.03370	0.18049
adventure	Dummy of adventure (yes=1, otherwise=0)	0.00756	0.08663
CNY	Dummy of Chinese New Year (yes=1, otherwise=0)	0.01008	0.09990
SV	Dummy of summer vacation (yes=1, otherwise=0)	0.23055	0.42125

Note: a) The average exchange rate during the data period (2013 - 2015) was 1US\$=30.59NT\$.

According to the concept of a cultural discount proposed by Lee (2006) and Fu and Lee (2008), one would expect that the cultural discount is negatively related to box-office revenue so that the coefficients of CD (β_1) are expected to be negative.

IV. RESULTS AND DISCUSSION

Given the variables constructed in the previous section, we estimate the empirical models in Equation (1) and the preliminary results are listed in Table 3. In the left part, pooled ordinary least squares (Pooled OLS), iteratively weighted least squares (WLS), and log model regressions are listed in the first four columns. The χ^2 values of the Breusch-Pagan (B-P) test in Pooled OLS (=1032.78) and the Log model (=28.09) both reject the null hypothesis of homoskedasticity. Therefore, robust regressions using reweighted least squares (WLS) are suitable for use in the estimations. The parameters regarding the measures of the cultural distance effects are of the

most interest in this article. All coefficients of cultural distance in the OLS and WLS regressions are significantly negatively related to box office revenue, and the results correspond to our expectations. The evidence indicates that the box-office losses to cultural distance increase when an imported movie's cultural distance becomes larger. The evidence corresponds to Fu and Lee's (2008) findings, and it supports the hypothesis of a cultural discount. Moreover, the coefficients of the square terms (SQCD) are significantly positive. The marginal effects of cultural distance decrease at a decreasing rate ceteris paribus. The evidence supports a U-shaped impact of cultural distance on inter-country cultural products in Moon, Mishra, Mishra, and Kang (2016). Furthermore, the marginal effects on the cultural distance are estimated. In the quadratically empirical settings in the Log model in the fourth column of Table 3, on average a one unit improvement (decrease) in cultural distance brings an additional 0.88% in a movie's box office revenue, ceteris paribus.

Table 3 Parameter Estimation of Cultural Distance in the Movie Box Office Model

VARIABLES	WLS	Log	Log
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		model	model (robust)
CD	-5.27e+06** (2.12e+06)	-0.88*** (0.16)	-0.88*** (0.23)
SQCD	1.90e+06*** (554,814)	0.27*** (0.039)	0.27*** (0.064)
comedy d	2.95e+06 (2.09e+06)	0.31* (0.16)	0.31* (0.17)
action	1.95e+07*** (3.98e+06)	1.47*** (0.17)	1.47*** (0.17)
horror	2.49e+06 (1.57e+06)	0.42** (0.20)	0.42** (0.20)
romance	-5.71e+06*** (1.62e+06)	-1.41*** (0.50)	-1.41*** (0.23)
sciencefiction	3.02e+07*** (6.69e+06)	1.72*** (0.23)	1.72*** (0.29)
adventure	5.66e+06 (6.47e+06)	0.49 (0.53)	0.49 (0.53)
thriller	4.94e+06 (3.39e+06)	0.77*** (0.29)	0.77*** (0.29)
pg	4.59e+06** (1.85e+06)	0.099 (0.15)	0.099 (0.15)
pg13	-1.98e+06 (1.64e+06)	-0.35** (0.16)	-0.35** (0.14)
sequel	-19.6 (10.9)	1.14*** (0.19)	1.14*** (0.19)
CNY	-3.70e+06 (2.31e+06)	0.19 (0.31)	0.19 (0.31)
SV	3.09e+06 (2.07e+06)	0.24* (0.13)	0.24* (0.13)
Constant	6.42e+06** (2.65e+06)	14.6*** (0.20)	14.6*** (0.20)
Observations	1,036	1,035	1,035
(Pseudo) R2	0.171	0.258	0.258
Breusch-Pagan(χ^2)		28.09***	

As to the coefficients of the other control variables, action, science-fiction, and sequel movies are significantly positive. Action movies, science-fiction movies, and sequels increase box office receipts by roughly 1.47%, 1.72%, and 1.14%, respectively. The results may explain the recent growth in the fraction of these movies in this category. These results correspond to Brown, Camerer, and Lovallo (2012).

CONCLUSIONS

There has been little systematic empirical research that has focused on the cultural production and consumption of assorted international production sources in the context of individual markets. As such, the current understanding of the demand side of the international film flow is not yet complete. This paper provides a comprehensive approach by taking cultural distance and movie box office revenues into consideration when examining the hypothesis of a cultural discount. The data on the cultural distance

between countries from which films are imported and Taiwan, the box offices revenues, and film characteristics from January 2013 to December 2015 have been collected. The results indicate that films from countries culturally more similar to Taiwan experience greater box-office revenues. The evidence supports the hypothesis of a cultural discount. Furthermore, the results confirm the U-shaped impact of inter-country cultural distance on film performance. Movie sales decrease in line with the cultural discount when the cultural distance is smaller than the distance from China. However, movie sales begin to increase as the CD becomes larger than that. The latter do not support the hypothesis of a cultural discount. The results indicate that consumers find the distant culture embedded in the movie to be novel and interesting. As to the other control variables, action and science fiction movies and those that appear in sequel during the Chinese New Year generate larger box office revenues. Rapid globalization has heightened the importance of global business, which

affects various cultural entertainment products. The implication for organizational managers is that they should keep cultural factors in mind when making decisions regarding importing films. The effect on box office revenue from the greatest cultural distance to the greatest cultural proximity in our estimation would result in a loss of over 1.12 million US dollars (i.e., $6.13 \times 5.5 = 33.72$ million NT dollars), *ceteris paribus*.

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