

1. Introduction

There is an ongoing debate on whether cultural goods like movies and music albums should be protected from foreign competitors.¹ A country like France, for example, relies on import restriction to protect her domestic film industry. One argument frequently used by protectionists is that domestic movies cannot compete against mega-budgeted Hollywood movies and will disappear if trade protection is lifted. An implicit assumption under this argument is that consumers easily substitute cultural elements for other product characteristics like high quality computer graphics integrated in movies.

On the contrary, one may also argue that preference for cultural goods is *biased* by cultural elements. For example, the utility from watching a Chinese film may diminish if one does not have good understanding of Chinese jokes or Chinese history and tradition. People who share the same ethnic background and social events may appreciate certain topics more than others. Then, cultural goods are naturally protected by cultural elements such as language, history, traditions, ethnic factors, etc.²

Movie producers seem to be already aware of the importance of culture. Its evidence is found in movies that are remade in another country even when the original film is available with subtitles. For example, *Shall We Dance?*, directed by Peter Chelsom and featured by Richard Gere, Susan Sarandon, and Jennifer Lopez is a remake of a runaway Japanese hit of the same title. The original Japanese film “contrasts the boldness of social dance with the buttoned-up societal mores of Japan, where people avoid public displays

¹ Cultural goods are defined by UNESCO (2005) as “consumer goods which convey ideas, symbols, and ways of life. They inform or entertain, contribute to build collective identity and influence cultural practices. They are the result of individual or collective creativity.”

of emotion.”³ The Hollywood remake closely follows the storyline of the original film, but it does not have this contrast. Instead, it focuses on a workaholic lawyer searching for passion.

It is an empirical question how much consumers care about cultural elements. Francois and Ypersele (2002) show that protection may enhance social welfare when preference for domestic culture is heterogeneous and social pressure forces those at the tail of the distribution choose foreign goods under no protection. Their result is based on the assumption that the average consumer does not care about cultural elements.

In this paper we assess how much consumers value cultural elements by estimating demand for films in Korea, which is an ideal place to estimate preference for culture. Korea is an ethnically homogenous country with only 1 percent foreign born in her population.⁴ All Koreans speak the same native language, Korean, which is not spoken in any other country (except for North Korea). This gives our study an enormous advantage since we can bypass the concern of controlling consumer heterogeneity in cultural aspects of films.

We use a discrete choice model of differentiated product demand (Berry, 1994). We include nationality variables in addition to other movie characteristics to measure consumers’ willingness to pay for cultural elements. We use monthly data on admissions at the individual movie level from 2002 to 2004 with data on movie characteristics. The empirical specification is similar to Einav (forthcoming), who estimates demand for films in the US market.

² Although it is not confined to cultural goods, Armington home bias is frequently used in the literature to explain preference towards home-produced goods in consumption.

Our result shows that Korean consumers are willing to pay more for home-produced movies compared to imported foreign movies. It suggests that consumers differentiate cultural goods based on nationality and there seems to be a cultural bias in consumption. Our estimate shows that the probability of watching a foreign movie would increase by 87.5 percent if its cultural elements were replaced by Korean.

The paper is organized as follows. Section 2 briefly describes the film market of Korea. Section 3 describes data. Model and estimation strategies are discussed in section 4. Estimation results are in Section 5. Section 6 concludes.

2. Korea Film Market

Recently, demand in the Korean film market has expanded significantly. This is reflected by an increase in total admissions and attendance per movie. This trend is summarized in Table 1. In 2004, 268 movies were shown in Seoul, the capital city of Korea, and they drew 47 million admissions with about 175,000 admissions per movie. Total admissions as well as the attendance per movie have more than doubled in about six years while the number of movies shown per year has remained almost the same; in 1998, total admissions were 22 million for 287 movies with 78,000 admissions per movie.

More than seventy percent of movies shown in Korea have been either Korean or Hollywood movies. They have combined more than ninety percent of total admissions. As shown in Table 2, Korean movies have advanced rapidly during the six year span.

³ David Horiuchi, editorial reviews at www.amazon.com

Their market share increased from 21 percent of the total admissions in 1998 to 54 percent in 2004 with the attendance per movie almost tripled. Meanwhile, US movies have lost the attendance share from 72 percent to 41 percent with a moderate increase in the attendance per movie.

While the stellar performance of Korean movies is eye-catching, this is only a recent phenomenon. Not long ago, there were periods during which they had to rely heavily on screen quota to exhibit a minimum number of movies. In 1966, a screen quota system was created based on the Movie Promotion Law in Korea. The screen quota system initially required theaters to exhibit at least six Korean movies for 90 days or more per year. After rounds of modifications, the screen quota system now requires at least 146 days of Korean movie exhibition, which is equivalent to 2/5 of exhibit days per year.

The current screen quota requirement, however, is *effectively* 106 days due to special reduction allowances for summer peak exhibition days counted as one and 2/3 days for each day of exhibition up to 20 days and an additional 20 day reduction for the theaters participating in the integrated electronic network. The screen quota system, however, has had no significant effect until more recently due to strong import restrictions.

In 1988, Korea lifted import restrictions on foreign films and allowed Hollywood film distributors to open a branch in Korea for direct-distribution of Hollywood movies; the first such case is UIP. Since then, Korean movies' admissions share had continuously declined and recorded the lowest mark of 15 percent in 1993.

⁴ Korea National Statistical Office, Resident registration population, Household <http://kosis.nso.go.kr>

Theaters were blamed for having contributed to this result by violating screen quota. Since there was virtually no monitoring, theaters often reported false data on the number of Korean movie exhibition days to the government. Then a citizen's group, mostly consisting of Korean movie industry workers, created *Screen Quota Watchers* to enforce theaters to abide by the screen quota system. Some people argue that the screen quota system, although not fully complied by all theaters partly due to the light penalty for violating the screen quota, may have prevented a total collapse of the Korean films industry at that time.

The situation has drastically turned around in more recent years. Since 2001, the exhibition days of Korean films have remained above the requirement about 38 percent or more and the Korean films admissions share has skyrocketed to more than 50 percent. While screen quota may have contributed to the renaissance of Korean films in the development process, it has not been binding in recent years.

The recent surge of the Korean movies can be explained in part by a big increase in production and advertising budget, which is related with the entry of big conglomerates, so-called *Chaebol*. Samsung marked the first of conglomerates entering into the film industry in 1992. In time these conglomerates transformed the structure of the business, introducing a vertically integrated system whereby the finance, production, exhibition, distribution, and video release of films was all controlled by a single company.

Although many *Chaebol* including Samsung dropped out of the industry after the 1997 financial crisis, major conglomerates such as CJ, Lotte and the Orion Group remain the industry's most powerful players. In 2004, movies distributed by the big three led

total attendance at about 60 percent of all movies of the year and they captured more than 80 percent of Korean movie admissions. Table 3 shows the average production and advertising budget of Korean films in recent years. The average production budget has doubled from 1998 to 2004 and the advertising budget has more than quadrupled.⁵

Aided by the budget increase in production and advertising, Korean films began to produce a string of box office hits. *Shiri* in 1999, which recorded then all-time high 6.2 million admissions, is considered to be the first Korean blockbuster movie. Following *Shiri* and a few other record-breaking movies, *Taegukki* (2004) and *Silmido* (2003) both recorded more than 11 million admissions. Before *Shiri*, the previous record was set by ??? that marked ?? admissions in 19??. Table 4 reports top six Korean blockbusters of all-time.

3. Data

Data availability limits our study to the most recent years. Monthly admissions data for 764 films from 2002 to 2004 are provided by the Korean Film Commission. Other characteristics for the films include opening date, nationality, distributor, producer/importer, movie rating, and number of screens. A market in our study is defined on a month and total number of observation is 1294. The geographic area is confined to Seoul, the capital city of South Korea, which accounts for more than one-third of the Korean film market.

⁵ They are in nominal value. The annual inflation rate for the six year span was about 4 percent.

Summary statistics for the entire sample period are provided in Table 5-1. Age variable is constructed by calculating the number of days a film has been shown since the opening date to the end of the month. Five observations are missing for the age variable. Some movies appear with a long lag between exhibitions and the age becomes extremely large. Some movies have with an error on their opening dates (opening date later than the exhibition month).

There are only 524 movies (870 observations) with budget information. Production budget information for Korean movies is taken from each year's edition of *Korean Cinema* published by Korean Film Commission (KOFIC). For US and other country films, we use various internet sources to find the information. For US movies, production budgets do not include prints and advertising budgets. For Korean movies, it is not specified whether the amount includes prints and advertising budgets. Appendix provides the internet sources and opening dates of the US movies in the United States.

Table 5-2 and Table 5-3 provide information on the distribution of movie exhibitions by rating and by month, respectively. Note that the monthly pattern of movies shown in each month is distinguished from the pattern of the United States.⁶ Smaller number of movies is shown in January, July, and December, although admission shares are highest in these months and August (Table 5-4.) This particular monthly pattern is less evident with Korean movies or US movies alone from Table 5-3. One possible explanation is that potential blockbusters of Korean movies and US movies are more likely set to target a release date in peak seasons. Small budget movies and other foreign movies may want to avoid the head-to-head competition with the potential blockbusters.

Historical admissions data for the films market of Korea are in Table A1 in Appendix. Descriptive statistics of movie shares and attendance shares by nationality/region are reported for each sample period in Table A2.

4. Model and Estimation Strategy

We use a discrete choice model of differentiated product demand to estimate consumer demand for watching movies in theaters. A market is defined as the capital city of South Korea in a given month. An underlying assumption in this model is that consumers consume at most one unit of goods or choose the outside option in each period. Thus, we assume that consumers watch at most one movie in each month and define the outside option as not watching any movies.

The indirect utility function for consumer i and product j is

$$u_{ij} = X_j\beta + \xi_j + \varepsilon_{ij} \quad (1)$$

Where X_j is a set of observed movie characteristics, β is marginal utility with respect to observed characteristics, ξ_j is the mean value of unobserved characteristics, and ε_{ij} is *i.i.d.* Type I extreme value error. We assume that consumers pay the same admission fee for any movies they watch. There is a little variation in the admission fee among theaters, but it is largely uniform. It is the same for all movies shown in a given theater. Therefore, we drop a price variable from the indirect utility function.

⁶ See Einav (forthcoming).

Observable characteristics include the rating, the age of movies in the market, the producer/importer, the distributor, the nationality, and the seasonal dummy variables. Einav (forthcoming) provides a discussion on the role of the age as characteristics. We also use a budget variable in some specifications. However, we have 240 out of 764 movies without information on the budget.

Although it is not straightforward to interpret the producer/importer and the distributor as characteristics of movies, these variables capture important elements that may affect success/failure of movies. For example, a producer with a considerable market power often casts popular actors and actresses, invests more money in making movies, and advertises more aggressively.

In a market with J movies on screen the probability of movie j being watched is

$$s_j = \frac{\exp(X_j\beta + \xi_j)}{1 + \sum_{m=1}^J \exp(X_m\beta + \xi_m)} \quad (2)$$

The model is estimated by assuming that unobserved characteristics of movies are not correlated with observed characteristics. Since we do not estimate a price coefficient, we are not concerned about price endogeneity.

However, current characteristics may not be sufficient to control for quality that consumers care about such as directors, casting, genre, and so forth. One way to control for the unobservable quality is to estimate the mean quality by using the fixed effect without characteristics which do not vary over time, and then to regress the mean quality on characteristics (Nevo, 2001). Einav (forthcoming) uses this method to control

unobservable movie quality. However, one needs to observe the same movie over a reasonably long period of time to consistently estimate the mean quality. As we have monthly data, the average duration of movie in the market is less than 2 periods.

As an alternative we attempt to control as much of unobservable quality as possible with producer/importer and distributor dummy variables. There are 28 producers/importers and 25 distributors we control for. In addition to these we use the random effect at a movie level.

Our main focus is on nationality variables. Is nationality a characteristic which consumers care about when they choose which movie to watch? In a more hypothetical setting, if a movie made in Hong Kong had been made in Korea with Korean speaking actors/actresses, would the same number of Koreans have watched this movie?

An important characteristic of the Korean movie market is that almost all consumers are Korean. Therefore, the coefficient on the dummy variables for nationality in the indirect utility function captures how much people from one culture value their own culture compared with other cultures.

5. Estimation Results

Tables 6-1 and 6-2 show demand estimates. In Table 6-2 we control the producer/importer and distributor effects. *Age* variable measures the number of days a movie is shown from the opening date to the end of a given period. *USA*, *Korea*, and *Europe* are nationality dummy variables. Their coefficients capture consumers' marginal

utility from origins of movies relative to *Asia* and *Others*. There are four ratings; *All*, *PG-12*, *PG-15*, and *R*, and we drop *All*. *Month* dummy variables capture the seasonal effect in movie watching.

Except for *Specification 1* we use the random effect at the movie level in all other specifications. As the first two columns of Table 6-1 show, the coefficients of the age variable and the dummy variable for August increase and become significant with the random effect. Other estimates do not change much.

The coefficient of *Age* variable is significant and negative in all specifications, showing a time decaying effect. With the coefficient -0.033 the probability of watching a movie decreases by 3.24 percent on average as the movie becomes one day “older”.⁷

Demand for *PG-12* movies is the highest, followed by *PG-15* and *All*, although the coefficients of *PG-15* and *All* are not significant in any specifications. It shows that the largest consumer group is teenagers.

Demand for movies is the highest in January, July, August, and December, and it is the lowest in April, September, and October. This seasonal demand is different from the US movie market where a high demand season starts on Memorial Day and ends on Labor Day. The difference is mainly due to school schedule. Schools in Korea have the winter break over two months from the middle of December and one month summer break from the mid-July, whereas US schools have almost four months summer break starting around Memorial Day.

⁷ The semi-elasticity of the share with respect to characteristics evaluated at the average share.

In the first two specifications the coefficients of the nationality dummy variables are all significant. They imply that demand for Korean movies is the highest, followed by USA and Asian movies, and European movies are the least popular, controlling the decay effect, the seasonal effect, and the ratings. In particular, if a movie had been made with Korean cultural elements, instead of other Asian cultures, the probability of watching that movie increases by 131.5 percent on average. On the other hand, if the same movie had been made with American cultural elements the probability goes up by 94.9 percent on average.

The third column in Table 6-1 shows demand estimates with *Budget* and *Budget squared* included. 240 movies without budget information are dropped in the estimation. Most of them are Asian and European movies. The budget variables are significant, and show that movie quality increases at a decreasing rate with a higher budget. In particular, when an extra million dollar is spent, the probability of watching a movie increases by 4 percent on average.

Interestingly, the coefficient of USA variable becomes negative, although not significant, while the coefficients of Korea and Europe variables increase in an absolute term. It suggests that preference for US movies is mainly explained by preference for high budget movies, and that Korean consumers do not prefer US movies more than Asian movies for other reasons.

One may argue that characteristics of movies are not sufficiently controlled with the current variables, and that our results may reflect the aggregate market share with respect

to nationality. Thus, we use all information available like producers/importers and distributors to control characteristics as much as possible.

Table 6-2 shows demand estimates with 28 major producers/importers and/or 25 major distributors included. There are some producers/importers or distributors with a small number of movies. Producers/importers that have less than 10 observations are treated as the same producer/distributor. The same treatment is applied to distributors.

With the producer/importer effect controlled the coefficient of USA variable decreases from 0.956 to 0.407 and becomes insignificant (in the first column.) The coefficient of Europe increases from -0.956 to -0.454 and becomes insignificant. The Korea variable increases from 1.325 to 1.499 and is still significant. The overall R squared increases to 0.314.

With the distributor effect added, difference among foreign movies becomes more negligible. The coefficient of USA decreases from 0.407 to 0.099 and that of Europe increases from -0.454 to -0.224. The coefficient of Korea decreases from 1.499 to 0.882 but is still significant (in the second column.) This means that if cultural elements in a foreign movie were switched to Korean, the probability of watching that movie increases by 87.5 percent on average.

We repeat this exercise with the budget variable in the third column. The coefficient of USA does not change with more variables included. It is negative but not significant. The coefficient of Europe increases from -1.261 to -0.097 and becomes insignificant. The coefficient of Korea decreases to 1.779 but is still significant.

6. Conclusion

In this paper we assess how much consumers value cultural elements by estimating demand for films in Korea. We use a discrete choice model of differentiated product demand and include nationality variables in addition to other movie characteristics to measure consumers' willingness to pay for cultural elements.

Our result shows that Korean consumers are willing to pay more for home-produced movies compared to imported foreign movies. Our estimate shows that the probability of watching a foreign movie would increase by 87.5 percent if its cultural elements were replaced by Korean. According to our findings, there seems to be a cultural bias in consumption.

References

- Berry, S., 1994. "Estimating Discrete Choice Models of Product Differentiation" *Rand Journal of Economics*, 23(2), 242-262.
- Einav, L., forthcoming. "Seasonality in the U.S. Motion Picture Industry," *Rand Journal of Economics*.
- Francois, P., and Ypersele, T., 2002. "On the protection of cultural goods," *Journal of International Economics*, 56, 359-369.
- Guiso, L., Sapienza, P., and Zingales, L., forthcoming. "Does Culture Affect Economic Outcomes?" *Journal of Economic Perspectives*.
- Horiuchi, D., editorial reviews at www.amazon.com.
- Korean Film Commission, 2002-2004, *Korean Cinema*, Seoul, Korea.
- Korea National Statistical Office, Resident Registration Population, Household at <http://kosis.nso.go.kr>.
- Nevo, A., 2001. "Measuring Market Power in the Ready-to-Eat Cereal Industry," *Econometrica*, 69, 307-322.
- Unesco Institute for Statistics UNESCO Sector for Culture, 2005. *International Flows of Selected Cultural Goods and Services, 1994-2003*, Montreal, Canada.

Table 1. Recent Trend of Korean Film Market (Seoul only)

Year	Number of Movies	Admissions	Attendance per Movie
2004	268	47,037,793	175,514
2003	240	43,948,082	183,117
2002	274	40,767,729	148,787
2001	280	34,983,217	124,940
2000	339	27,463,315	81,013
1999	275	24,083,750	87,577
1998	287	22,396,593	78,037
Average	280	34,382,926	125,569

Table 2. Film Market Shares in Korea (Seoul only)

Year	Movies Share		Admissions Share		Attendance per Movie	
	Korea	USA	Korea	USA	Korea	USA
2004	0.28	0.44	0.54	0.41	306,509	304,903
2003	0.27	0.47	0.50	0.43	317,109	311,855
2002	0.30	0.48	0.45	0.49	217,719	261,383
2001	0.19	0.49	0.46	0.46	283,016	230,444
2000	0.18	0.51	0.32	0.55	148,509	180,207
1999	0.15	0.60	0.36	0.56	205,010	182,922
1998	0.15	0.60	0.21	0.72	111,152	216,599

Table 3. Average Production Budget for Korean Movies
(unit: in 100 million Korean won)

Year	Average Total Budget	Average Production budget	Average Advertising budget	Number of Movies	Total Budget for the Year
2004	42	28	14	82	3,411
2003	42	28	13	80	3,328
2002	37	25	13	78	2,902
2001	26	16	9	65	1,658
2000	22	15	7	59	1,269
1999	19	14	5	49	931
1998	15	12	3	43	645
1997	13	11	2	59	767
1996	10	9	1	65	650

Table 4. Top Six Korean Blockbusters (All-time Record as of December, 2004)

Film	Year	Admissions (in million)
Taegukki	2004	11.15
Silmido	2003	11.07
Chingu (Friend)	2002	8.18
Shiri	1999	6.21
JSA	2000	5.83
My wife is a Gangster	2001	5.25

Table 5-1. Summary Statistics for the Entire Sample Period

Variable	Obs.	Mean	Std. Dev.	Min	Max
Age	1289	28.2	21.6	1	145
Budget ^a	870	23,600	36,900	59	200,000
Share	1294	0.017	.035	1.73e-07	0.414

Note: ^a in thousand US dollars

Table 5-2. Number of Movie Exhibitions by Rating

Rating	Obs.	Percent
All	199	15.38
PG-12	312	24.11
PG-15	496	38.33
R	287	22.18
Total	1,294	100

Table 5-3. Number of Movie Exhibitions and Shares by Month

Month	Total		Korea		USA	
	Obs.	Share (%)	Obs.	Share (%)	Obs.	Share (%)
1	82	6.34	27	6.15	19	8.09
2	104	8.04	32	7.29	23	9.79
3	105	8.11	29	6.61	25	10.64
4	126	9.74	37	8.43	19	8.09
5	102	7.88	38	8.66	12	5.11
6	123	9.51	43	9.79	16	6.81
7	90	6.96	40	9.11	15	6.38
8	105	8.11	38	8.66	20	8.51
9	128	9.89	44	10.02	23	9.79
10	122	9.43	37	8.43	22	9.36
11	129	9.97	43	9.79	26	11.06
12	78	6.03	31	7.06	15	6.38
Total	1,294	100	439	100	235	100

Table 5-4. Admissions Share Statistics by Month

Month	Obs	Mean	Std. Dev.	Min	Max
1	82	0.0266	0.0487	5.20e-06	0.3057
2	104	0.0195	0.0516	5.20e-07	0.4149
3	105	0.0128	0.0217	5.20e-06	0.1508
4	126	0.0114	0.0263	1.78e-05	0.1555
5	102	0.0186	0.0393	1.39e-06	0.2262
6	123	0.0148	0.0299	1.73e-07	0.1500
7	90	0.0269	0.0361	5.72e-06	0.1394
8	105	0.0228	0.0300	1.04e-06	0.1598
9	128	0.0135	0.0284	2.42e-06	0.1649
10	122	0.0132	0.0291	8.66e-07	0.2106
11	129	0.0126	0.0256	1.73e-06	0.1584
12	78	0.0260	0.0516	1.73e-06	0.2116

Table 6-1 Demand Estimates in the Logit Model

	Specification 1		Specification 2		Specification 3	
	Coefficient	s.e.	Coefficient	s.e.	Coefficient	s.e.
Age	-0.015**	0.003	-0.033**	0.003	-0.037**	0.003
Budget	—		—		0.052**	0.008
Budget Squared	—		—		-0.00017**	0.00005
USA	0.838**	0.240	0.956**	0.268	-0.937	0.521
Korea	1.215**	0.251	1.325**	0.282	1.949**	0.513
Europe	-0.979**	0.310	-0.956**	0.345	-1.261*	0.602
PG-12	0.730**	0.235	0.806**	0.274	0.377	0.270
PG-15	0.341	0.218	0.303	0.252	0.417	0.253
R	-0.145	0.240	-0.161	0.277	0.214	0.282
February	-1.209**	0.375	-0.992**	0.311	-1.109**	0.342
March	-1.408**	0.375	-1.154**	0.334	-1.282**	0.358
April	-1.778**	0.361	-1.661**	0.334	-1.499**	0.355
May	-1.283**	0.376	-0.932**	0.350	-0.503	0.380
June	-1.713**	0.363	-1.348**	0.342	-1.078**	0.366
July	0.331	0.390	0.432	0.362	0.372	0.384
August	0.206	0.374	0.689*	0.350	0.600	0.370
September	-1.747**	0.360	-1.298**	0.338	-1.576**	0.353
October	-1.668**	0.363	-1.540**	0.339	-1.635**	0.363
November	-1.507**	0.359	-1.293**	0.332	-1.286**	0.360
December	-0.739	0.403	-0.602	0.339	-0.554	0.375
Constant	-4.522**	0.373	-4.544**	0.380	-4.359**	0.576
Random Effect	No		Yes		Yes	
Producer/Importer	No		No		No	
Distributor	No		No		No	
R ²	0.150		0.145		0.297	
Obs.	1289		1289		933	

*significant at the 5% level

**significant at the 1% level

Table 6-2 Demand Estimates in the Logit Model, continued

	Specification 4		Specification 5		Specification 6	
	Coefficient	s.e.	Coefficient	s.e.	Coefficient	s.e.
Age	-0.032**	0.003	-0.033**	0.003	-0.039**	0.003
Budget	—		—		0.041**	0.008
Budget Squared	—		—		-0.000*	0.000
USA	0.407	0.302	0.094	0.285	-0.811	0.634
Korea	1.499**	0.297	0.882**	0.296	1.779**	0.655
Europe	-0.454	0.333	-0.224	0.312	-0.097	0.706
PG-12	0.824**	0.250	0.667**	0.233	0.324	0.265
PG-15	0.295	0.232	0.193	0.215	0.449	0.251
R	-0.252	0.256	-0.258	0.238	0.170	0.281
February	-1.054**	0.303	-1.016**	0.294	-1.018**	0.336
March	-1.194**	0.319	-1.090**	0.307	-1.202**	0.349
April	-1.674**	0.316	-1.605**	0.301	-1.431**	0.348
May	-0.907**	0.331	-0.906**	0.315	-0.532	0.371
June	-1.027**	0.328	-0.918**	0.311	-0.758*	0.360
July	0.572	0.342	0.603	0.327	0.518	0.375
August	0.805*	0.329	0.854**	0.314	0.755*	0.361
September	-1.240**	0.318	-1.238**	0.302	-1.455**	0.344
October	-1.419**	0.318	-1.398**	0.304	-1.543**	0.353
November	-1.202**	0.312	-1.180**	0.298	-1.149**	0.349
December	-0.408	0.329	-0.376	0.319	-0.403	0.368
Constant	-5.394**	0.537	-5.346**	1.810	-5.558**	1.764
Random Effect	Yes		Yes		Yes	
Producer/Importer	Yes		Yes		Yes	
Distributor	No		Yes		Yes	
R ²	0.314		0.427		0.426	
Obs.	1289		1289		933	

*significant at the 5% level

**significant at the 1% level

Appendix. Data Sources for Budget and Opening Dates of US Movies in the United States

For Budget of U.S. movies:

* Internet Sources

1. <http://www.the-numbers.com/movies>
2. <http://www.imdb.com>

For Budget of Korean movies:

* Source: Korean Film Commission (2001-2004), *Korean Cinema: Feature Films*.

Note 1) All budgets are estimated values.

Note 2) Production Budget only for the U.S. movies. Prints and Advertising budgets are not included.

Note 3) Budget of Korean movies is not specified whether it includes Prints and Advertising budgets.

For Opening Dates of U.S. movies in the United States:

* Internet Sources

1. <http://www.imdb.com>
2. <http://movies.yahoo.com/>
3. <http://www.the-numbers.com/movies>

$$\text{Semi-elasticity: } \frac{\partial s_j}{\partial x_{jk}} \frac{1}{s_j} \approx \beta(1 - \bar{s})$$

Table A1. Historical Admissions Data: Korea Film Market (Unit for Admissions: 10,000 persons)

Year	Korean Movies			Foreign Movies			Total	
	Admissions	Share (%)	Movies per Person	Admissions	Share (%)	Movies per Person	Admissions	Movies per Person
2004	8,019	59.3	1.65	5,498	40.7	1.13	13,517	2.78
2003	6,391	53.5	1.32	5,556	46.5	1.15	11,947	2.47
2002	5,082	48.3	1.07	5,431	51.7	1.13	10,513	2.2
2001	4,481	50.1	0.96	4,455	49.9	0.93	8,936	1.9
2000	2,271	35.1	0.42	4,191	64.9	0.89	6,462	1.3
1999	2,172	39.7	0.50	3,300	60.3	0.71	5,472	1.2
1998	1,259	25.1	0.29	3,759	74.9	0.81	5,018	1.1
1997	1,212	25.5	0.23	3,540	74.5	0.77	4,752	1
1996	976	23.1	0.19	3,244	76.9	0.71	4,220	0.9
1995	944	20.9	0.21	3,569	79.1	0.79	4,513	1
1994	993	22.0	0.24	3,842	79.5	0.86	4,835	1.1
1993	769	15.9	0.18	4,054	84.1	0.92	4,823	1.1
1992	872	18.5	0.22	3,839	82.0	0.88	4,711	1.1
1991	1,106	21.2	0.25	4,114	78.8	0.94	5,220	1.2
1990	1,081	20.2	0.25	4,265	79.7	0.99	5,350	1.2
1989	1,115	20.2	0.26	4,415	79.8	1.04	5,530	1.3
1988	1,216	23.3	0.29	4,007	76.8	0.96	5,220	1.2
1987	1,311	27.0	0.31	3,549	73.0	0.85	4,860	1.2
1986	1,562	33.0	0.38	3,166	66.9	0.77	4,730	0.9
1985	1,644	34.2	0.40	3,166	65.8	0.78	4,810	1.2
1984	1,689	38.5	0.42	2,703	61.6	0.67	4,390	1.1
1983	1,755	39.8	0.43	2,648	60.1	0.66	4,404	1.1
1982	0	0	0	0	0	0	4,274	1.1
1981	0	0	0	0	0	0	4,444	1.2
1980	0	0	0	0	0	0	5,377	1.41
1979	0	0	0	0	0	0	6,552	1.7
1978	0	0	0	0	0	0	7,399	2
1977	0	0	0	0	0	0	6,493	1.8
1976	0	0	0	0	0	0	6,570	1.8
1975	0	0	0	0	0	0	7,560	2.1
1974	0	0	0	0	0	0	9,738	2.81
1973	0	0	0	0	0	0	11,462	3.4
1972	0	0	0	0	0	0	11,872	3.5
1971	0	0	0	0	0	0	14,630	4.4
1970	0	0	0	0	0	0	16,635	5.2
1969	0	0	0	0	0	0	17,304	5.5
1968	0	0	0	0	0	0	17,134	5.61
1967	0	0	0	0	0	0	16,408	5.4
1966	0	0	0	0	0	0	15,634	5.3
1965	0	0	0	0	0	0	12,170	4.2
1964	0	0	0	0	0	0	10,458	3.7
1963	0	0	0	0	0	0	9,606	3.5
1962	0	0	0	0	0	0	7,905	3
1961	0	0	0	0	0	0	5,861	2.32

Table A2. Movie Shares and Attendance Shares by Nationality/Region for Each Sample Period

Period	Korea		USA		Asia		Europe		Other		Total (number)	
	Movies	Attendance	Movies	Attendance	Movies	Attendance	Movies	Attendance	Movies	Attendance	Movies	Attendance
2002.1	0.353	0.268	0.412	0.705	0.088	0.009	0.147	0.018	0	0	34	3974028
2	0.314	0.561	0.600	0.438	0.029	0.000	0.029	0.001	0.029	0.000	35	3006557
3	0.244	0.312	0.585	0.672	0.122	0.008	0.049	0.008	0	0	41	2514334
4	0.256	0.669	0.564	0.294	0.051	0.021	0.103	0.003	0.026	0.014	39	2565929
5	0.425	0.525	0.450	0.411	0.025	0.061	0.075	0.002	0.025	0.000	40	3323447
6	0.339	0.559	0.339	0.361	0.051	0.070	0.271	0.010	0	0	59	2443993
7	0.400	0.276	0.486	0.548	0.057	0.173	0.057	0.004	0	0	35	4138175
8	0.311	0.292	0.467	0.589	0.089	0.083	0.133	0.036	0	0	45	4522808
9	0.395	0.697	0.372	0.245	0.116	0.038	0.093	0.020	0.023	0.001	43	3193764
10	0.441	0.553	0.412	0.389	0.059	0.055	0.059	0.000	0.029	0.003	34	2983687
11	0.390	0.537	0.537	0.428	0.049	0.007	0.024	0.029	0	0	41	3191356
12	0.425	0.403	0.400	0.581	0.125	0.003	0.050	0.013	0	0	40	4539241
2003.1	0.296	0.326	0.556	0.508	0.074	0.129	0.074	0.037	0	0	27	3378124
2	0.300	0.551	0.500	0.317	0.133	0.126	0.067	0.006	0	0	30	4172805
3	0.219	0.397	0.594	0.548	0.125	0.055	0.063	0.000	0	0	32	2543359
4	0.317	0.545	0.463	0.404	0.073	0.021	0.146	0.030	0	0	41	2495317
5	0.343	0.500	0.343	0.466	0.086	0.011	0.171	0.013	0.057	0.010	35	4006261
6	0.375	0.499	0.375	0.443	0.094	0.037	0.125	0.021	0.031	0.001	32	4039375
7	0.482	0.459	0.407	0.475	0.037	0.054	0.074	0.012	0	0	27	4742770
8	0.385	0.418	0.423	0.505	0.039	0.059	0.154	0.018	0	0	26	4136191
9	0.333	0.590	0.515	0.354	0.091	0.054	0.061	0.002	0	0	33	3282474
10	0.255	0.705	0.471	0.236	0.177	0.046	0.098	0.013	0	0	51	3391656
11	0.333	0.495	0.400	0.461	0.156	0.030	0.111	0.015	0	0	45	3451629
12	0.393	0.437	0.393	0.531	0.179	0.031	0	0	0.036	0.001	28	4069073
2004.1	0.360	0.625	0.400	0.370	0.120	0.002	0.080	0.001	0.040	0.002	24	5248745
2	0.279	0.823	0.535	0.161	0.047	0.013	0.140	0.003	0	0	43	4551057
3	0.375	0.758	0.563	0.231	0	0	0.063	0.011	0	0	32	2731211
4	0.304	0.572	0.457	0.401	0.174	0.025	0.065	0.002	0	0	46	3260573
5	0.333	0.613	0.370	0.343	0.185	0.042	0.111	0.002	0	0	27	3630545
6	0.344	0.328	0.375	0.649	0.219	0.019	0.031	0.000	0.031	0.004	32	4007589
7	0.464	0.434	0.357	0.533	0.143	0.032	0	0	0.036	0.001	28	5092378
8	0.412	0.559	0.382	0.436	0.088	0.001	0.118	0.004	0	0	34	5172062
9	0.308	0.553	0.442	0.284	0.077	0.145	0.173	0.019	0	0	52	3467086
10	0.243	0.619	0.378	0.269	0.216	0.103	0.135	0.004	0.027	0.005	37	2909380
11	0.286	0.528	0.381	0.399	0.095	0.030	0.167	0.012	0.071	0.031	42	2760949
Average	0.339	0.508	0.448	0.434	0.099	0.045	0.101	0.010	0.012	0.002	37	3626798