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Culture Matters: A Hierarchical Linear Random Parameters Model for Predicting Success of US Films in Foreign Markets

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Abstract

Culture matters in ways that are salient for products with significant cultural content. In particular, the cultural context in which a product is launched plays an important role in its success. The present study examines the impact of cultural context on the box office performance of US films in foreign markets. A hierarchical linear random parameters model is used to assess the impact of national culture, degree of Americanization, US box office and film genre on performance in eight foreign markets. The model allowed for film-specific heterogeneity to be accounted for and for hypotheses to be tested at both the film level and the country level. Results indicate that films perform better in countries that are culturally closer to the US and those that have a higher degree of Americanization. The genre of the film and US box office success also had a significant impact on performance. Some implications are drawn for managers releasing films in foreign markets.

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1. Introduction

Film, along with other creative goods, represents a distinctive product category. Each film is unique and demand for any given film is difficult to predict (DeVany and Walls 1996, 1999). Even when a film uses the same talent, is of the same genre, is a sequel or a new version of a previously released film, there is still considerable uncertainty as to whether or not it will be successful. Caves (2000) characterizes this as, "nobody knows." Further, while consumer testing is often used to guide promotional efforts and perhaps even change an ending, unlike other consumer products, films are not designed systematically based on prior consumer research. Even where some market research is undertaken, films remain a creation of the culture in which they are developed. Films inevitably reflect the writer's view, the director's vision, and the actor's interpretation of the script, all of which are influenced by the cultural context.

The uniqueness of each film coupled with the limited ability to apply marketing research to refine the product offering, results in considerable uncertainty about consumer response to a given film. Previous research examining factors underlying box office success in the film industry has focused primarily on distribution factors. In particular attention has centered on the number of screens, the use of local (independent) distributors, the size of the advertising budget and characteristics such as the presence of stars and the genre of the film (Sawhney and Eliashberg 1996). These studies have

largely found the number of screens to be the most critical factor in affecting box office revenues. With the exceptions of Neelameghan and Chintagunta (1999) and Elberse and Eliashberg (2002), attention has focused on the US market. Little attention has been paid to the context in which films are released or the factors underlying success in different overseas markets.

This paper will examine the extent to which the cultural environment in which a film is released affects its success. The study is based on data drawn from the *Variety.com* website on the top 50 films in eight foreign countries for six consecutive years. First, some background on the film industry and previous literature are reviewed. Then, the research approach and the hierarchical regression model used to analyze the data are presented. Next, the results are discussed and some conclusions drawn relating to the role of cultural factors in the success of US films in international markets.

2. Background

2.1. The Film Industry

Film is the primary engine of the entertainment industry and the US is the dominant player. Of the 256 top grossing films of all time in terms of non-US box office (gross revenue of $100 million or more outside the US), all but six were US films and three of these remaining films were from the UK (imbd.com). In aggregate, non-US films accounted for only two percent of the total revenue. The pattern is consistent from year to year. For example, in 2002 the top five films in Germany, UK, Australia, Spain, Argentina, The Netherlands, Japan, South Korea, and China were US films, while in Mexico and France, all but one of the top five films were from the US (*Variety* 2003a).

While studios generate revenue from multiple windows, the theatrical release window is the most critical as it establishes the value of the film for subsequent windows, such as pay-per-view, cable, home video, and broadcast TV. In addition to these windows, successful films also represents substantial opportunities for licensing, merchandising, and other entertainment products, such as TV shows, books, plays, and theme park attractions. In 2002, theatrical release revenues from films in the US were over $9.5 billion (MPA 2002) and US studios could expect to receive equivalent theatrical revenue from foreign markets as well. In 2002, US theatrical revenue represented only 9.7 percent of the total revenue studios received from key film release windows (*Variety* 2003b).

The film industry is characterized by rapid new product development and heavy marketing expenditures (Krider and Weinberg 1998, Litman 1983). In 2002 the average major studio film cost almost $60 million to produce and another $30 million to promote (MPA 2002). The heavy up front investment and short life of a film means that it is critical to promote it heavily and release it simultaneously on multiple screens. Marketing efforts create audience interest prior to release and a large number of screens ensures widespread availability. A film is released simultaneously on thousands of screens to capitalize on this expenditure and take maximum advantage of the "buzz" surrounding the launch. Films are then released subsequently in major film markets overseas to capture additional revenue. Success at the box office in the US is often viewed as a signal of how the film will perform in markets outside the US.

The high costs of production and promotion for a feature film require a large market with relatively homogeneous tastes to be profitable. Even with the large US

market, most films are not profitable based on their US box office revenue alone and studios rely heavily on foreign markets for profitability. For example, while *Titanic,* the top grossing film of all time, achieved sales of over $600 million in the US, it realized *twice* that amount outside the US.

2.2. Previous Research

Research examining factors underlying success in the film industry have typically focused on modeling distribution intensity, distribution characteristics, film characteristics such as genre, and presence of stars in order to predict box office revenues (Jedidi, Krider and Weinberg 1998, Krider and Weinberg 1998). Some studies have, for example examined the pattern of weekly box office revenues (Jedidi, Krider and Weinberg 1998) and the degree of competition between motion pictures (Krider and Weinberg 1999). Others have examined the impact of both distribution and marketing policies and film and critics' reviews on box office revenue (Sawhney and Eliashberg 1996, Neelamgan and Chintagunta 1999, Ravid 1999, deVany and Walls 1999). Decision support systems to aid exhibitors make better and more timely scheduling decisions have also been developed (Swami, Eliashberg and Weinberg 1999). More complex models examining the interaction between audience and exhibitor characteristics have also been developed (Elberse and Eliashberg 2002).

Only two studies (Elberse and Eliashberg 2002, Neelamgan and Chintagunta 1999) have examined the performance of US films in foreign markets. Neelamegham and Chintagunta (1999) developed a Bayesian modeling framework to predict first week viewership for 35 new films in the US and in 14 international markets, based on the number of screens in which a film was released, the cumulative number of viewers as a

proxy for word of mouth, the number of weeks since the initial release, and film attributes such as the presence of major stars and the genre of the film. For all countries, the number of screens on which a film was released was found to be the most important influence on viewership. Local distribution was also found to improve film sales internationally. Differences were also found in genre preference across countries, although no systematic pattern was identified and similar genre preferences were evident in geographically disparate countries.

Elberse and Eliashberg (2002) conducted an extensive study covering 164 films over two years in the US and four foreign countries, France, Germany, Spain and the U.K. They used an econometric modeling approach to predict the opening week box office, second week and beyond. They examined the adaptive behavior of both audiences and exhibitors and included a range of drivers of these behaviors including, advertising budget, presence of star, director, advertising expenditure, critical reviews, major distributors, word of mouth communication, competition for screen space, competition for attention of audiences, seasonality, domestic and foreign performers. They also examined the time lag between domestic and foreign market introduction to assess the extent to which performance of a film in a foreign market is influenced by its performance in the domestic market, and whether this relationship was moderated by the time lag between the film's introduction in each market. Again, the number of screens on which a film was distributed was found to be the key factor underlying its success (Elberse and Eliashberg 2002).

Both these studies have provided considerable insight into the film-specific factors associated with box office performance in foreign markets. Both studies also

demonstrate that a film's box office performance in the US is a strong predictor of its success outside the US. However, neither study examined how the cultural aspects of the contexts in which different types of films are released influence their success.

2.3. Research Hypotheses

In addition to their economic importance, films play an important role in the transmission of culture. They are both culturally rich and culturally complex. They constitute a form of entertainment that reflects both daily life, often emphasizing romantic, humorous, and violent elements as well as the fantasies, dreams and imagination through which individuals escape from the realities of daily existence. Films, like other forms of entertainment, mirror the culture in which they are created. Chekhov's plays reflect the life of the Russian landowner at the turn of the 20th century, just as Wilde reflects the mannerisms of Edwardian culture or Weill the ideological conflicts of Germany in the 1930s. Similarly, Italian opera, Brazilian samba, the Indian dance of Shiva, or Spanish bullfights are integral parts of Italian, Brazilian, Indian and Spanish culture and appeal to a broad spectrum of society (Gannon 2001). French films by Truffaut, Swedish films by Bergman, Italian films by Felini, Spanish films by Bunuel, Indian films produced in "Bollywood," and Japanese films by Kurosawa all reflect the vision of the directors and the cultures that produced them.

Over time, the film industry has come to be dominated by US studios and filmed entertainment represents a major US export. The rich cultural content of films suggests the need to examine the role of content and context in influencing their success in foreign markets. Insofar as US films reflect US values, they may be expected to be more successful in countries that are culturally similar to the US and less successful in cultures

distant from the US. While culture has not been examined specifically in relation to film, there is a rich tradition in the international business literature examining the impact of culture on foreign market entry (Mitra and Golder 2002), selection of mode of entry (Kogut and Singh 1988) and the effect of culture on consumer traits such as innovativeness (Steenkamp, ter Hofstede and Wedel 1999). Such factors suggest the following research hypothesis:

> **Hypothesis 1**: The more similar a country is to the US, the more likely a US film will be successful at the box office.

Countries vary in the extent to which they have emulated a US life-style or have adopted products typical of that lifestyle as for example, fast food, carbonated soft drinks, casual clothes such as jeans and t-shirts and running shoes or US sports such as basketball and baseball. The icons or role models of US culture such as Michael Jordan, Tom Cruise, or Eminen may be embraced by those in other countries. Equally, members of other cultures may have adopted traits typical of US culture, such as concern with cleanliness (as reflected in frequent showers and daily hair washing), preoccupation with time and a fast-paced life, casual dress and fast food. Consequently, it is hypothesized that US films, as conveyors of US values, will be more successful in countries where life-styles have become more Americanized.

> **Hypothesis 2:** The higher the degree of Americanization in a country, the more likely a US film is to be successful.

Language is an important factor influencing the success of US films. It is important not only for effective understanding of the film's content, but also because it is an important component of culture. Language reflects specific cultural attitudes and behavior patterns that may be alien to an audience which speaks a different language and

act as a barrier to acceptance or empathy with the film's storyline and presentation. In non-English-speaking countries films need to be dubbed to ensure comprehension of the dialogue. This may diminish their effectiveness and impact due to loss of fluency and synchronization of dialogue and action. In some cases there may also be inconsistency between the scenario and the language spoken, as for example when an American Western is dubbed in French, Arabic or Mandarin.

More importantly, insofar as language is an important element in the transmission of cultural patterns and behavior, and according to one school of thought (Whorf 1956) plays an important role in the formation of thought patterns, one may expect speakers of the same language to have similar cultural beliefs, attitudes and behavior patterns. In addition, language plays an important role in linking cultural communities and forging a bond between its members, resulting in similar preferences and behavior norms (Hall 1976, Usunier 2000). Consequently, members of countries speaking a common language are expected to be more culturally similar than those speaking another language.

> **Hypothesis 3**: US films are more likely to be successful in English-speaking countries than in non-English speaking countries.

So far the hypotheses have centered on the cultural environment into which a film is released and how that impacts the degree of success. The host culture, degree of Americanization and language are all hypothesized to exert some influence. It is also important to consider how different types of films will be received by different cultural groupings. Films are complex multi-faceted creations of a particular culture (Austin 1987). Each is unique and the nature and extent of their cultural content will vary. At the extreme, westerns are unmistakably American, portraying a particular period of US history. Comedy is a genre that tends to be embedded in a particular culture and

appreciation of a particular type of humor, for example British humor, is not universal. Notions of romance and courtship vary considerably from culture to culture and may not correspond to contemporary US mores. On the other hand, fantasy and science fiction are not necessarily anchored in any particular culture, although members of a particular culture may exhibit preferences (or dislike) for these genres. Prior research on US films in foreign markets (Neelamegham and Chintagunta 1999) has demonstrated that genre has an impact on a film's performance in different countries. However, results varied considerably and there was no specific pattern of acceptance of a particular genre across countries.

> **Hypothesis 4**: The genre of a US film will influence its performance in foreign markets.

3. Data

In order to examine these hypotheses, a hierarchical regression model specifying the impact of both film-level and country-level independent variables on box office receipts was developed. The dependent variable consisted of annual box office receipts (foreign) for the top 50 US films, based on US theatrical box office revenue, that were subsequently released in eight foreign countries. The independent variables consisted of two groups; the first measured film characteristics, specifically box office revenue and film genre, and the second measured country characteristics -- cultural distance, degree of Americanization, and language.

3.1. Film-level data

Data were obtained from the *Variety.com* web site on the top 50 US films (gross box office receipts) for a six-year period, 1997 through 2002. Approximately 500 films are released each year in the US. Focusing on the top 50 films for each year insures a

sample of films that are not only released in the US but are ones that will be released subsequently in foreign markets. In any given year to be in the top 50 a film had to have a domestic gross revenue of approximately $50 million. Corresponding data for the same films were obtained for the eight foreign countries available on the *Variety.com* web site (Australia, UK, Austria, Germany, Argentina, Chile, Mexico, and Spain). While *Variety's* domestic data go back to 1982, complete data on foreign box office receipts begins in 1997. However, data on box office receipts in Australia, Austria and Argentina are very sparse for 1997. One top 50 film, *Everest*, was excluded from the analysis as data were available for only one country outside the US. This provided a total of 299 films and 2,198 observations. The missing observations are attributable to a film not being released in a particular country or the incompleteness of the *Variety.com* database in the early years.

When a film's revenue stream spanned two years it was assigned to the year in which the majority of its gross revenue was realized. Popular films released in December may obtain more than half their gross revenue in the subsequent year. Also, studios may arrange for a limited release of the film in late December to qualify for that year's Academy Awards and then substantially expand the number of screens in January. This approach also provided a better match between the US year and the foreign year as the foreign release window is after the US release date. For example, a film released in the US in December 1997 would typically have the majority of this revenue in 1998 with virtually all the foreign revenues occurring in 1998. These data were adjusted to per capita values and expressed as logs.

A film's genre was obtained from the Internet Movie Data Base (imdb.com). IMDB often assigns a secondary and tertiary genre to a film. Only the first listed genre was used as the film's genre for the purposes of the analysis. This resulted in 13 primary genres. These data were coded as dummy variables in the analysis to assess the impact of a film's genre on its performance in foreign markets. Tables 2 and 4 each contain a listing of 12 of the genre. The 13th genre was crime.

Film-level predictor variables for the analysis were limited to the per capita US box office and its genre. Since the data were for the entire run in all the countries, factors normally examined, such as screens and stars were not used. The number of screens varies week by week so that one number would not suffice. Further, previous studies that incorporated screens were interested in predicting opening week box office and week-by-week revenues. The present paper is concerned with answering a different question relating to the impact of cultural factors on a film's gross revenue in foreign countries. Also, since the data are for the entire run, the effect of screens and stars is reflected in the overall revenue number for the US and the foreign countries.

3.2. Country-level data

Cultural distance was measured based on distance from the US on a composite index of Hofstede's four value orientations. These value orientations represent the "collective programming of the mind that distinguishes one nation from another" (Hofstede 2000). They were developed from data drawn from interviews with employees of a large US multinational firm. There are four value orientations, Individualism/Collectivism, Power Distance, Uncertainty Avoidance, and Masculinity/Feminity. Individualism/Collectivism represents the degree to which an

individual perceives him or herself to be separate from a group and pressure to conform; Power Distance reflects the degree to which members of a society accept a hierarchical or unequal distribution of power in society; Uncertainty Avoidance reflects the degree to which members of a society are willing to deal with the uncertainty or risk of daily living and prefer to work with long-established friends and acquaintances, and Masculinity/Feminity represent the degree to which a society looks favorably on materialistic and aggressive rather than nurturing behavior. Following Kogut and Singh (1988) an index of cultural distance from the US was developed for each country.

Population and per capita income were obtained from the World Bank for all countries for 2000 (World Bank Development Report 2001). This is roughly in the middle of the period for the film data. These numbers are stable and do not change appreciably in a relatively short period of time. Population was used to express box office receipts on a per capita basis. Per capita income data were used as a covariate to control for the wealth of the population and hence their ability to afford discretionary leisure time activities. The degree of Americanization was assessed based on the number of McDonald's outlets per capita in each country. The number of McDonald's restaurants was obtained from McDonald's web site. McDonalds is a key symbol of US values and life-style overseas (Ritzer 2002). Those who admire and seek to emulate US lifestyle see McDonalds' restaurants as emblematic of that lifestyle. Equally, those who resent the growing dominance of US culture and US economic and military power see them as a target for their animosity. The number of McDonald's restaurants per capita was used as a measure of a country's "degree of Americanization" and hence the propensity to accept American films.

All of the films in the data base, with the exception of *Chocolat* and *Crouching Tiger, Hidden Dragon*, were originally released in English. A dummy variable was coded as one if the foreign country was English-speaking and zero otherwise. This also served as another measure of cultural proximity as countries that share a common language have other elements of culture in common. Language is also expected to affect box-office revenues. As noted earlier, films that are dubbed may have less appeal than in their original language, as the language may be incongruent with the stars or context of the film, or alternatively idioms may translate poorly into another language. More importantly, language is a key element of culture and communication and hence may reflect important cultural differences. The country-level data are summarized in Table 1.

Table 1. Country Data

Country	Population (Millions)	Per capita Income (US $)	McDonalds per million people	Cultural distance from the US
Argentina	37	12,900	4.68	3.20
Chile	15	9,110	4.0	6.10
Spain	39	19,180	7.69	4.02
Mexico	98	8,810	2.76	6.01
Germany	82	25,010	14.05	.97
Austria	8	26,310	19.9	1.51
Australia	19	25,370	37.8	.45
UK	60	23,550	14.05	.52

4. Model and Estimation Methods

The hypotheses involve variables at two levels, film and country. In addition, each film is unique and consequently it was also desirable to be able to account for film-specific heterogeneity. Consequently, a hierarchical random parameters regression model was formulated as follows:

$$\begin{aligned} B_{f,c} &= \alpha_f + \beta_f B_{f,US} + \gamma_1 CD_c + \gamma_2 MACSPC_c + \gamma_3 English_c \\ &\quad + \delta_{98} D_{1998} + \ldots + \delta_{02} D_{2002} + \sum_{g=1}^{12} \eta_g G_{f,g} + \varepsilon_{f,c} \\ \alpha_f &= \alpha_0 + \alpha_1 \text{logIncome}_c + u_{\alpha,f} \\ \beta_f &= \beta_0 + \beta_1 \text{logIncome}_c + u_{\beta,f} \end{aligned} \quad (1)$$

where "*f*" denotes film, $f = 1,\ldots,F = 299$ and "*c*" denotes country = UK, Australia, Germany, Austria, Argentina, Chile, and Mexico. In the primary equation, $B_{f,c}$ is the log of the per capita box office revenues for film *f* in country *c*; $B_{f,US}$ is the same for the United States. CD_c is our measure of the cultural distance of country *j* from the US. Hofstede's (2001) four measures of cultural distance were used to examine the impact of culture on a film's performance. Following Kogut and Singh (1988) cultural distances were indices based on Hofstede's measures of Individualism, Power Distance, Uncertainty Avoidance and Masculinity. This provided an overall measure of cultural distance from the US. Deviations were corrected for differences in the variance of each of the four dimensions. The aggregate measure of cultural distance is

$$CD_c = \frac{1}{4}\sum_{i=1}^{4} \frac{(I_{i,c} - I_{i,US})^2}{V_i}, \; c = UK, Australia, \ldots, \; i = power\ distance, \; uncertainty, \ldots \quad (2)$$

where V_i is the variance across countries of the ith cultural distance index. $MACSPC_c$ is the number of McDonald's restaurants per capita in country *c* in 2000; $English_c$ is a

dummy variable for whether the country is an English-speaking country (UK, Australia). Note that these three variables are the same for every film and in every year for country *c*. The time dummy variables are denoted D_{YEAR} for 1998 – 2002. We fixed 1997 as the base year and dropped this dummy variable from the equation. Thus, each of these five remaining dummy variable coefficients measures the residual effect relative to the base year, 1997. The variables $G_{f,g}$ are 12 dummy variables for primary genre; the 13th, Crime, is fixed as the basis. The disturbance, $\varepsilon_{f,c}$ is assumed to be normally distributed with mean zero and constant variance σ^2.

Two random parameters in the model capture unobserved film specific heterogeneity. The constant term, $\alpha_{f,c}$ includes a pure 'random effect.' The coefficient on US box office, β_f is film specific; we have assumed that the direct relationship between the US and local box office receipts has a film-specific component. The two random parameters are also assumed to be affected by the per capita income in the country in 2000, which provides an indication of the standard of living as well as discretionary income and the population's ability to engage in paid leisure-time activities. The stochastic nature of these two parameters is imparted by the random components, u_α and $u_{\beta,}$ which are assumed to be normally distributed with means zero and variances σ_α^2 and σ_β^2, respectively. Although the film industry has certain market characteristics that underlie the relationship between foreign and US box office receipts, each film is a separate project with characteristics of its own, sufficiently distinct that we felt it appropriate to allow for the film-specific heterogeneity in the fashion described. A likelihood ratio test for the presence of these effects supported the hypothesis that there is film-specific heterogeneity (LR=428.12, *d.f.*=4).

The parameters of the model are estimated by the method of maximum simulated likelihood. For convenience, gather the full set of independent variables in the equation not including the constant and $B_{f,US}$ in a vector $\mathbf{x}_{f,c}$ and denote $\mathbf{z}_f = (1, B_{f,US})$. Denote the random parameters in the model as $\boldsymbol{\theta}_f(\mathbf{u}_f, I_c)$ where the subscript f denotes the specific film, I_c denotes the log of per capita income in the country, and $\mathbf{u}_f$ denotes the vector of two random components, $u_{\alpha,f}$ and $u_{\beta,f}$. Thus, $\boldsymbol{\theta}_f(\mathbf{u}_f, I_c)$ denotes the 2×1 random parameter vector for the model and let $\boldsymbol{\lambda}$ denote the remaining fixed parameters (that is, homogenous across films – we have no prior beliefs that these other coefficients vary across films). Then, the model may be written

$$B_{f,c} = \boldsymbol{\theta}_f(\mathbf{u}_f, \mathrm{I_c})'\mathbf{z}_f + \boldsymbol{\lambda}'\mathbf{x}_{f,c} + \varepsilon_{f,c},\ \varepsilon_{f,c} \sim \mathrm{N}[0, \sigma^2] \tag{3}$$

$$\boldsymbol{\theta}_f(\mathbf{u}_f, \mathrm{I_c}) = \boldsymbol{\theta}_0 + \boldsymbol{\theta}_1 I_c + \mathbf{u}_f,\ \mathbf{u}_f \sim \mathrm{N}_2[(0,0),(\sigma_\alpha^2, \sigma_\beta^2), \sigma_{\alpha\beta}]$$

with $\boldsymbol{\theta}_0 = (\alpha_0, \beta_0)'$ and $\boldsymbol{\theta}_1 = (\alpha_1, \beta_1)'$ and $\sigma_{\alpha\beta} = 0$. Conditioning on the film specific random effect, $\mathbf{u}_f$, the density for a particular observation is

$$\begin{aligned} f(B_{f,c} \mid \mathbf{u}_f) &= \frac{1}{\sigma\sqrt{2\pi}} \exp\left[-\frac{1}{2}\left(\frac{B_{f,c} - \boldsymbol{\theta}_f(\mathbf{u}_f, I_c)'\mathbf{z}_f - \boldsymbol{\lambda}'\mathbf{x}_{f,c}}{\sigma} \right)^2 \right] \\ &= \frac{1}{\sigma}\phi\left(\frac{B_{f,c} - \boldsymbol{\theta}_f(\mathbf{u}_f, I_c)'\mathbf{z}_f - \boldsymbol{\lambda}'\mathbf{x}_{f,c}}{\sigma} \right) \end{aligned} \tag{4}$$

where $\phi(t)$ denotes the standard normal density. We assume that the country specific observations on box office receipts are independent save for the common film-specific heterogeneity, so the contribution of a particular film to the likelihood for the sample is the product of the country specific observations:

$$L(B_{f,UK}, B_{f,Australia}, \ldots \mid \mathbf{u}_f) = \prod_{c=1}^{8} \frac{1}{\sigma}\phi\left(\frac{B_{f,c} - \boldsymbol{\theta}_f(\mathbf{u}_f, I_c)'\mathbf{z}_f - \boldsymbol{\lambda}'\mathbf{x}_{f,c}}{\sigma} \right). \tag{5}$$

(We have simplified the notation slightly by specifying that each film is observed in all 8 countries. In the sample data, in fact, some films are not observed in some of the countries. The estimation procedure is not changed by this complication – sums and products are simply based on the available data.)

Terms in the likelihood are conditioned on the unobserved heterogeneity, $\mathbf{u}_f$ which must now be integrated out of the function in order to obtain the sample likelihood function for the observed data;

$$L_f = \int_{\mathbf{u}_f} \prod_{c=1}^{8} \frac{1}{\sigma}\phi\left(\frac{B_{f,c} - \boldsymbol{\theta}_f(\mathbf{u}_f, I_c)'\mathbf{z}_f - \boldsymbol{\lambda}'\mathbf{x}_{f,c}}{\sigma}\right) g(\mathbf{u}_f)d\mathbf{u}_f . \quad (6)$$

Finally, the log likelihood for the full sample to be maximized is

$$\text{Log}L = \sum_{f=1}^{299} \log L_f . \quad (7)$$

This is maximized over the structural parameters,

$$\boldsymbol{\theta} = (\alpha_0,\alpha_1,\sigma_\alpha^2),(\beta_0,\beta_1,\sigma_\beta^2),\gamma_1,\gamma_2,\gamma_3,\delta_{98},\ldots,\delta_{02},\eta_1,\ldots,\eta_{12},\sigma^2. \quad (8)$$

A practical obstacle to maximizing the log likelihood is the integration of the heterogeneity out of the function. There are two approaches available, quadrature and simulation. Quadrature is usually an effective technique when integration is over a single dimension, but it is generally ineffective when integration is in two or more dimensions, and is infeasible for three or more. We have chosen the simulation procedure, which works effectively even in high dimensional applications. [See Train (2003) for discussion.] The simulated log likelihood is obtained as follows: First, write $u_{\alpha,f}$ as $\sigma_\alpha v_{\alpha,f}$ and $u_\beta = \sigma_\beta v_{\beta,f}$ where $v_{\alpha,f}$ and $v_{\beta,f}$ have normal distributions with mean zero and standard deviations 1. The contribution to the log likelihood for the observations on film f is then

(9)

$$\log L_f = \log \int_{v_{\alpha,f}} \int_{v_{\beta,f}} \prod_{c=1}^{8} \frac{1}{\sigma} \phi \left(\frac{\left[\begin{array}{l} B_{f,c} - (\alpha_0 + \alpha_1 I_c + \sigma_\alpha v_{\alpha,f}) - \\ (\beta_0 + \beta_1 I_c + \sigma_\beta v_{\beta,f}) B_{f,US} - \boldsymbol{\lambda}' \mathbf{x}_{f,c} \end{array} \right]}{\sigma} \right) g(v_{\alpha,f}, v_{\beta,f}) dv_{\beta,f} dv_{\alpha,f}$$

The double integral in this expression is the expected value of the product of densities over the range of $v_{\alpha,f}$ and $v_{\beta,f}$. This can be simulated satisfactorily by averaging the function over a sufficient number of draws, R, on $v_{\alpha,f}$ and $v_{\beta,f}$. [The relevant theory is summarized in Gourieroux and Monfort (1996).] The contribution of film f to the *simulated* log likelihood is, thus

$$\log L_{S,f} =$$
$$\log \frac{1}{R} \sum_{r=1}^{R} \prod_{c=1}^{C} \frac{1}{\sigma} \phi \left(\frac{B_{f,c} - (\alpha_0 + \alpha_1 I_c + \sigma_\alpha v_{\alpha,f,r}) - (\beta_0 + \beta_1 I_c + \sigma_\beta v_{\beta,f,r}) B_{f,US} - \lambda' x_{f,c}}{\sigma} \right) \quad (10)$$

[See Train (2003).] (Note the subscripts, "*r*" on $v_{\alpha,f,r}$ and $v_{\beta,f,r}$ which denote the simulated draws.) The simulated log likelihood function is then

$$\log L_S = \sum_{f=1}^{N} \log L_{S,f} \quad (11)$$

This smooth, continuous function is then maximized over the structural parameters in (8).

The "random draws" for maximum simulated likelihood estimation are generally created by using a random number generator to simulate a sample from the required distribution. In practice, this is done by simulating a series of draws from the standard uniform distribution, e.g., $w_{\alpha,f,r} \sim U[0,1]$. Draws from the normal distribution are then obtained by the using the inverse probability transformation, $v_{\alpha,f,r} = \Phi^{-1}(w_{\alpha,f,r})$, where $\Phi^{-1}(t)$ denotes the inverse function of the standard normal CDF. Recent research [e.g., Bhat (1999)] has found that this process of sampling for the purpose of integration can be

done faster and more rapidly (i.e., with fewer simulation points) by using "intelligent" draws which, rather than being random samples from the uniform distribution are deterministic Markov sequences of values from the unit interval. The foundation result is that it is not randomness of the sample of draws that is important for accurate integration; it is even coverage of the unit interval with a carefully constructed sequence of values that is uncorrelated with the data. We have used the method of Halton sequences for this purpose to speed up convergence and to stabilize the estimators. [See, e.g., Train (2003), Greene (2001) and Bhat (1999) for discussion of Halton sequences.] Evidence suggests that for a low dimension problem such as ours (two), using Halton sequences can reduce the required number of draws needed by a factor of five or ten. Formalities of computing Halton sequences are given in Train (2003) and Greene (2001).

5. Results

All films for all six years were analyzed together to test the hypotheses using the hierarchical linear random parameters regression model. In addition as a purely descriptive statistic, an ordinary least squares regression was run to provide some indication of the amount of variation in foreign box office receipts accounted for by the independent variables. Overall, the independent variables explained 47 percent of the variance in foreign box office receipts (adjusted R^2 .475). All the hypotheses were tested controlling for the effect of per capita income to account for that source of country-to-country variation. As indicated earlier, individuals with higher incomes also have more discretionary income and are better able to engage in paid leisure time activities. As expected the effect of income was positive (.359) and highly significant.

5.1. US Box Office

Assessing the significance of the relationship between U.S. box office (log, per capita) success and local box office (log, per capita) success is more involved in the random parameters setting than simply examining the estimated coefficients and their estimated standard errors. In the hierarchical model, we have

$$\beta_f | \, Income_c = \beta + \delta logIncome_c + \sigma_\beta v_f, \text{ where } v_f \sim N[0,1]. \quad (12)$$

A finding that estimates of β and δ are "significant" does not imply that the random coefficient on the left is, in total, correspondingly so. Large variation due to the normally distributed component, $\sigma_\beta v_f$, might dominate the random parameter. Simply computing and examining the marginal mean, $\beta + \delta logIncome_c$, at the estimated parameters is likewise non-conclusive. We propose to examine the distribution of the random parameters as follows: For each film, we can estimate the posterior mean, $E[\beta_f | B_{f,c}, \mathbf{x}_{f,c}, z_c, c = 1,\ldots,8]$, using Bayes theorem, where z_c is log per capita income and $\mathbf{x}_{f,c}$ is all other variables in the model including the log per capita U.S. box office, and $B_{f,c}$ is the log of the local per capita box office (the dependent variable). The empirical distribution of the estimated film specific estimates will then suggest whether the results document a systematic relationship between U.S. and local box office receipts.

For convenience, let $\mathbf{B}_f$ denote the observations on the local box office for this film for all countries for which it is observed, and let $\mathbf{X}_f$ denote the observations on all other variables for this film, including genre, MACSPC, log of per capita income, and so on, again for all countries. Then, the desired mean for the specific film is

$$E[\beta_f | \, \mathbf{B}_f, \mathbf{X}_f] = \int_{\beta_f} \beta_f \, f(\beta_f | \, \mathbf{B}_f, \mathbf{X}_f) d\beta_f \quad (13)$$

where $f(\beta_f|\mathbf{B}_f,\mathbf{X}_f)$ is the conditional density of β_f given all the information available in the sample on this film. This conditional distribution is constructed using Bayes theorem as follows:

$$f(\beta_f|\mathbf{B}_f,\mathbf{X}_f) = \frac{f(\beta_f,\mathbf{B}_f\,|\,\mathbf{X}_f)}{f(\mathbf{B}_f\,|\,\mathbf{X}_f)} \tag{14}$$

$$= \frac{f(\mathbf{B}_f\,|\,\beta_f,\mathbf{X}_f)\,f(\beta_f\,|\,\mathbf{X}_f)}{\int_{\beta_f} f(\mathbf{B}_f\,|\,\beta_f,\mathbf{X}_f)\,f(\beta_f\,|\,\mathbf{X}_f)d\beta_f}.$$

The joint density in the numerator is the product of the marginal distribution of β_f, which is the normal distribution defined by (12), and the conditional distribution of the dependent variable given the parameter β_f, which is the term in the likelihood function before the integration (5). The denominator is the marginal distribution of $\mathbf{B}_f$ obtained by integrating β_f out of the joint distribution. The conditional mean of this distribution is then obtained by the definition,

$$E[\beta_f\,|\,\mathbf{B}_f,\,\mathbf{X}_f] = \frac{\int_{\beta_f}\beta_f\,f(\mathbf{B}_f\,|\,\beta_f,\mathbf{X}_f)\,f(\beta_f\,|\,\mathbf{X}_f)d\beta_f}{\int_{\beta_f} f(\mathbf{B}_f\,|\,\beta_f,\mathbf{X}_f)\,f(\beta_f\,|\,\mathbf{X}_f)d\beta_f}. \tag{15}$$

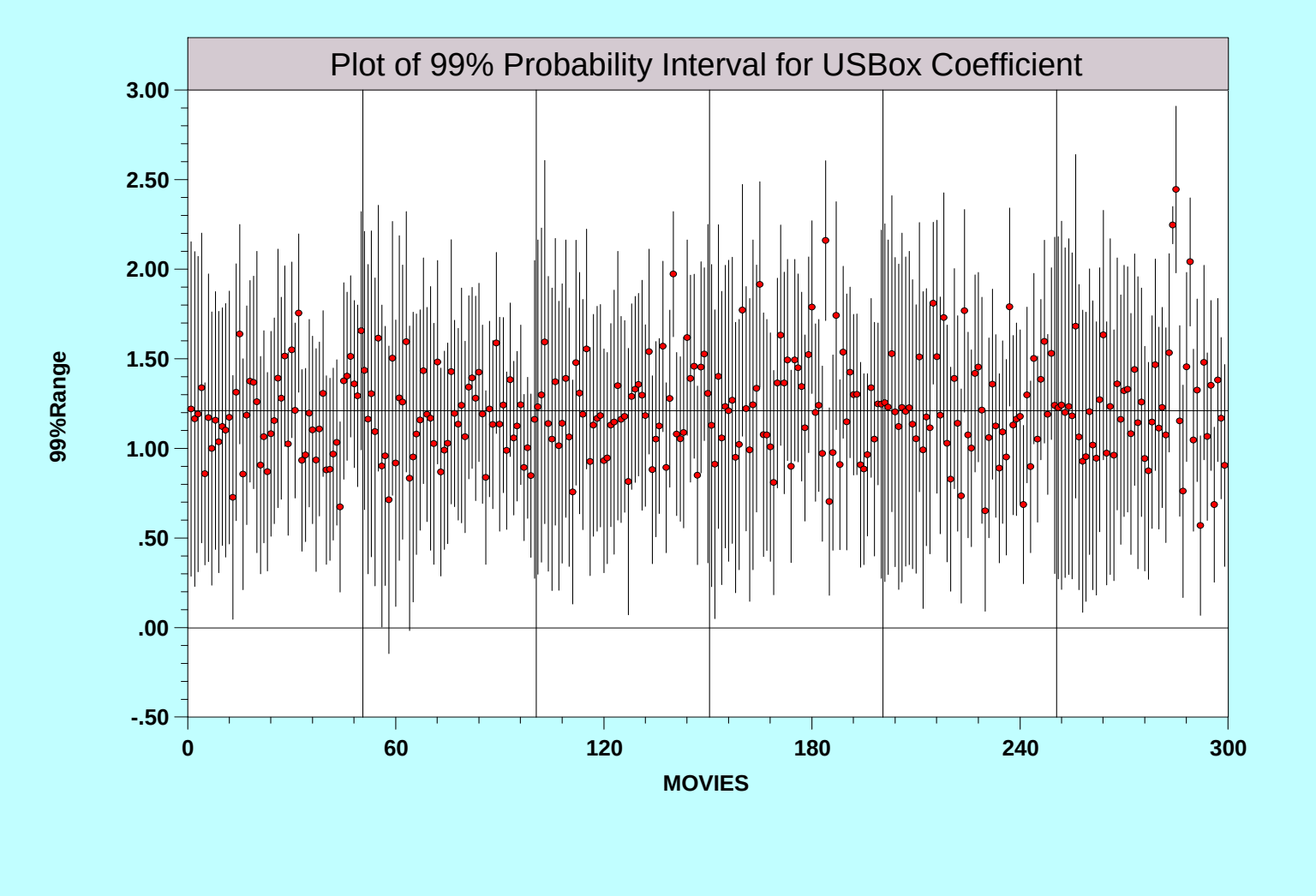
In order to estimate this quantity, we would insert the estimated parameters for the remainder of the model in the likelihood function and the marginal density of β_f, then compute the integrals. However, the integrals will not exist in closed form. They can be computed by simulation, by the same method used to computed the simulated likelihood earlier. The simulation estimator of the conditional mean function is, then

$$\hat{E}[\beta_f\,|\,\mathbf{B}_f,\mathbf{X}_f] = \frac{(1/R)\sum_{r=1}^{R}\hat{\beta}_{f,r}\hat{L}(\mathbf{B}_f,\mathbf{X}_f,v_{f,r})}{(1/R)\sum_{r=1}^{R}\hat{L}(\mathbf{B}_f,\mathbf{X}_f,v_{f,r})} \tag{16}$$

where $\hat{L}(B_f, X_f, v_{f,r})$ is the contribution to the likelihood function (not its log) of film *f* evaluated at all the estimated parameters and the *r*th simulated value, $\hat{\beta}_{f,r} = \hat{\beta} + \hat{\delta} \log percapitaIncome_c + \hat{\sigma}_\beta v_{\beta,f,r}$. Note that the simulation is over the draws of $v_{\beta,f,r}$. (Also, we note that the random constant term in the model is also simulated.) In the results below, we will also make use of the estimated posterior variance of β_f, $Var[\beta_f \mid \mathbf{B}_f, \mathbf{X}_f] = E[\beta_f^2 | \mathbf{B}_f, \mathbf{X}_f] - (E[\beta_f | \mathbf{B}_f, \mathbf{X}_f])^2$. This is estimated in the same fashion by first estimating the expected conditional square, then subtracting the square of the estimated conditional mean.

Figure 1 below shows for each of the 299 films the range given by the mean plus and minus 2.5 standard deviations from the conditional distribution. With conditional normality, this range would encompass about 99% of the mass of each conditional distribution. Since the conditional distributions are not necessarily normal nor symmetric, the actual mass may be slightly less than this, but will be more than 95%. The horizontal lines in the figure are drawn at the sample mean of the 299 estimated conditional means (1.21) and zero. The vertical bars divide the data into the six years of observations. Only one of these intervals comes close to including zero, and that one only slightly. We conclude that the relationship between US and foreign box office is indeed, positive and significant. Figure 2 summarizes these with a kernel density estimate of the marginal distribution of β_f, averaged across all films. Once again, the results strongly suggest the significance of the relationship. (See Greene 2003, pp. 453-456 for discussion of kernel density estimation.)

Figure 1. 99% Confidence Intervals for Film Specific Coefficients on logUSBox



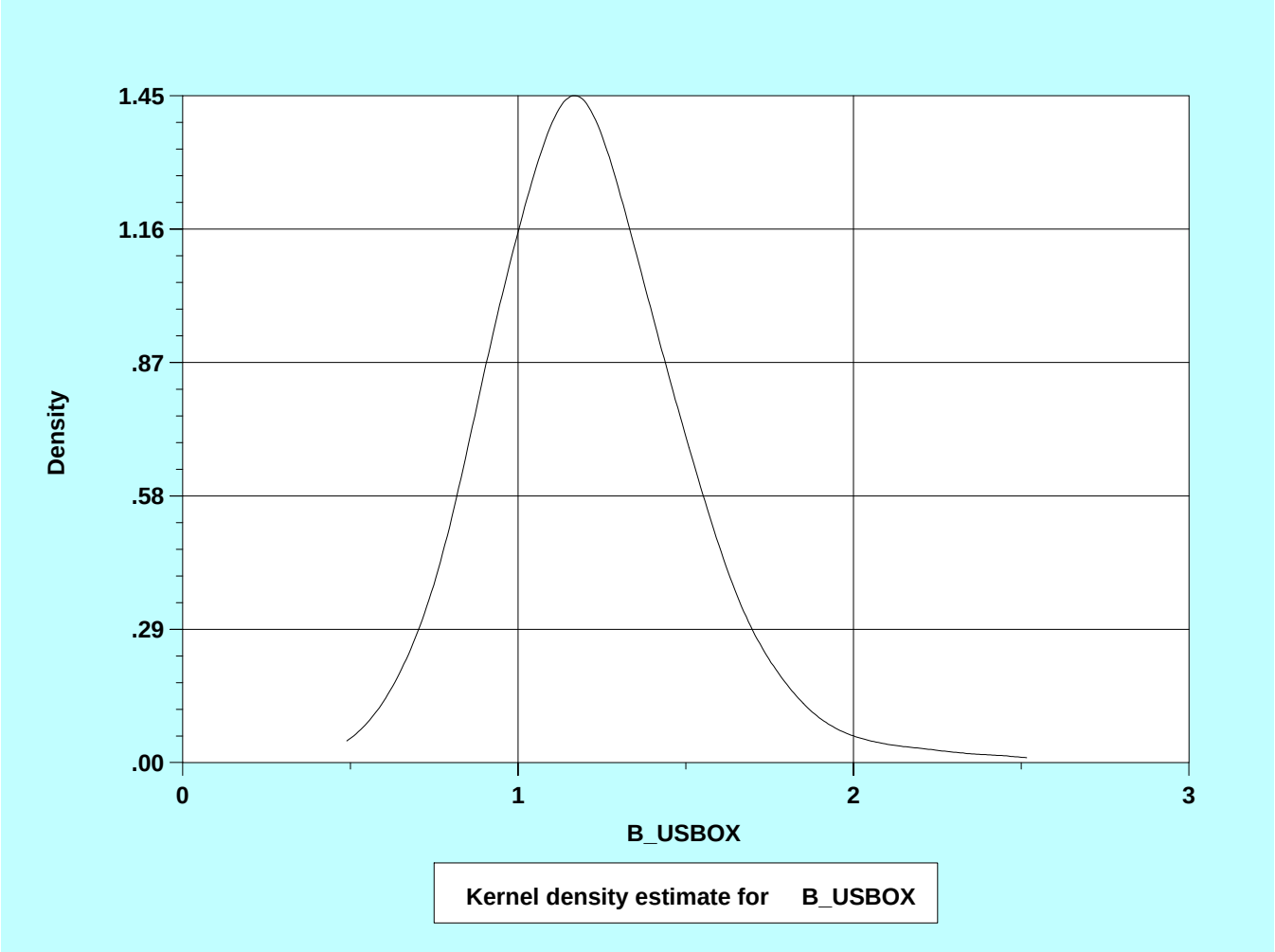


Figure 2. Estimate of the Density of US Box Office Coefficient, Averaged Over Films

Table 2. Estimated Regressions for Log Per Capita Box Office, All Countries (Estimated Standard Errors in Parentheses)[a]

	Fixed Parameters Model (OLS)	Random Parameters Model	
Variable	Fixed Parameters		
Cultural Distance	-0.155 (0.017)**	-0.156 (0.010)**	-0.156 (0.010)**
Macs Per Capita	0.040 (0.004)**	0.040 (0.003)**	0.040 (0.003)**
English Language	0.120 (0.079)	0.138 (0.052)**	0.135 (0.052)**
Drama	-0.130 (0.142)	-0.138 (0.086)	
Romance	0.022 (0.207)	0.042 (0.127)	
Comedy	-0.151 (0.138)	-0.140 (0.085)	
Action	0.118 (0.137)	0.092 (0.084)	
Fantasy	0.526 (0.191)**	0.559 (0.123)**	
Adventure	0.110 (0.161)	0.141 (0.099)	
Family	-0.498 (0.165)**	-0.591 (0.092)**	
Animated	0.152 (0.165)	0.149 (0.103)	
Thriller	-0.033 (0.176)	-0.074 (0.106)	
Mystery	0.383 (0.304)	0.227 (0.198)	
Science Fiction	0.039 (0.179)	0.009 (0.112)	
Horror	0.157 (0.165)	0.058 (0.112)	
Year 1998	-0.314 (0.084)**	-0.566 (0.050)**	-0.584 (0.045)**
Year 1999	-0.245 (0.087)**	-0.445 (0.050)**	-0.481 (0.047)**
Year 2000	-0.410 (0.085)**	-0.587 (0.051)**	-0.644 (0.045)**
Year 2001	-0.419 (0.085)**	-0.640 (0.052)**	-0.646 (0.047)**
Year 2002	-0.701 (0.087)**	-0.929 (0.050)**	-0.935 (0.043)**
	Random Parameters		
	Constant	Constant	
Intercept	-0.975 (0.183)**	-3.649 (1.313)**	-4.939 (1.290)**
Income Effect	0.000 (0.000)	0.359 (0.164)**	0.526 (0.161)**
Standard Deviation	0.000	0.177	0.304
	Per Capita US Box	Per Capita US Box	
Intercept	1.204 (0.047)**	1.669 (0.917)*	0.770 (0.907)
Income Effect	0.000[b] (0.000)	-0.057 (0.114)	0.063 (0.113)
Standard Deviation	0.000[b]	0.369	0.354
Disturbance S.D.	1.053	0.934	0.938
Log Likelihood	-3220.691	-3007.729	-3021.050
R^2	0.475		

[a] * (**) Indicates significant at 95% (99%) significance level.
[b]Fixed at this value.

5.2. Effect of Culture on Film Performance

Cultural distance had a significant effect on the performance of films (see Table 2 above). The coefficient was negative (-.156) and highly significant. Films released in countries that were culturally close to the US were more likely to perform well. Conversely, films released in countries that were farther from the US in terms of cultural distance did not perform as well. This confirms the key premise of the study that culture

does matter. It supports hypothesis 1 that the cultural context in which a film is released is an important factor influencing its success.

5.3. Effect of Americanization on Film Performance

Closely related to cultural distance is the extent to which the country has embraced elements of American culture. The number of McDonald's outlets per capita provided some indication of the extent to which a population has accepted aspects of American culture. The coefficient for number of McDonald's outlets per capita was positive (.040) and highly significant supporting Hypothesis 2. Films had higher per capita box office receipts in countries that had more McDonalds outlets per capita.

5.4. Effect of Language on Film Performance

Related to cultural distance, was whether the film was released in an English-speaking country. The coefficient for the English language dummy variable was positive (.138) and highly significant supporting hypothesis 3. When films were released in other English-speaking countries, the UK and Australia, they performed better than when they were released in non-English speaking countries. Not only would the non-English speaking countries be more culturally distant, but also the films would either be dubbed or subtitled. This would lessen their appeal and enhance the perception that they were from another culture.

5.5. Genre Effect

To determine whether there was a significant effect of genre, a likelihood ratio test was performed between the same equation with and without genre (see Table 2). The overall effect of genre was significant (LR=26.64, *d.f.*=12) supporting hypothesis 4. Individually, however, only two of the genre had an impact on how films performed in

foreign countries. Fantasy performed significantly better (.559) and family performed significantly worse (-.591). For the other ten genres, the coefficients were not significant.

5.6. Year Effect

Dummy variables were included to account for the six different years for which data were available with the base year as 1997. All the year effects were significant with negative coefficients. In each year subsequent to 1997, the relationship between per capita US box office and foreign box office was not as strong in 1997. Table 3 shows per capita US and foreign box office for the 50 films in the sample for each year. Per capita US box office for these generally increased from 1997 to 2002, with some minor fluctuations. Foreign per capita box office receipts were always lower than the US. They decreased from 1997 to 1999, increased again in 2000, declined in 2001 and then increased in 2002. In 1997, foreign box office for the films in the sample was 60 percent of the US box office. In each of the subsequent years, it was lower (ranging between 51 to 38 percent). This partly explains the negative coefficients for the year dummy variables.

Table 3. Per capita Box Office Receipts for Top 50 Films, per film– 1997 to 2002

Year	1997	1998	1999	2000	2001	2002
Foreign countries[1]	.197[2]	.168	.137	.174	.138	.162
US	.33	.33	.31	.37	.36	.40
Foreign as a percent of US Box Office	60%	51%	44%	47%	38%	40%

[1] Argentina, Australia, Austria, Chile, Germany, Mexico, Spain, and UK.
[2] US dollars, gross per capita box office revenue for all 50 films would be $9.85

5.7. Country Effects

The combined effect of cultural distance and language suggested that it would be useful to analyze the data by three language groupings, English, Spanish and German. A likelihood ratio test was performed to test whether there was a significant difference between the overall equation and separate equations for the three language groupings. The test indicates that there are significant differences between the country groupings (LR=751.23, *d.f.*=44).

Cultural distance was dropped from the equations since for the English and German groupings with only two countries, the number of McDonald's per capita was collinear with cultural distance. Also, from a conceptual standpoint, the countries within a language grouping already tended to be culturally similar. Ordinary least squares regressions were run to provide descriptive R^2 statistic. The adjusted R^2 was 0.55 for the English-language group, 0.41 for the German-language group, and 0.22 for the Spanish-language group. As in the aggregate analysis, the per capita US box office was a strong predictor of performance in each of the country language groupings. The results are shown in Table 4.

Table 4. Estimated Regressions for Log Per Capita Box Office, by Language Group

(Estimated Standard Errors in Parentheses)[a]

	All	English	German	Spanish
	Nonrandom Parameters			
Drama	-0.151 (0.086)**	-0.300 (0.083)**	-0.481 (0.060)**	-0.239 (0.156)
Romance	0.022 (0.123)	0.185 (0.122)	0.360 (0.090)**	-0.346 (0.206)*
Comedy	-0.182 (0.085)**	-0.031 (0.083)	-0.040 (0.059)	-0.462 (0.155)**
Action	0.087 (0.084)	0.070 (0.082)	0.212 (0.058)**	-0.054 (0.154)
Fantasy	0.541 (0.125)**	0.504 (0.117)**	0.927 (0.084)**	0.267 (0.223)
Adventure	0.151 (0.101)	0.091 (0.097)	0.160 (0.069)**	0.061 (0.187)
Family	-0.573 (0.093)**	-0.163 (0.093)	-0.172 (0.071)**	-1.125 (0.165)**
Animated	0.140 (0.104)	0.063 (0.098)	-0.536 (0.069)**	0.271 (0.192)
Thriller	-0.103 (0.107)	-0.239 (0.105)*	-0.256 (0.076)*	-0.003 (0.186)
Mystery	0.383 (0.206)*	0.012 (0.184)	0.527 (0.147)**	0.331 (0.355)
Science Fiction	0.018 (0.119)	0.101 (0.108)	0.035 (0.077)	-0.215 (0.215)
Horror	0.083 (0.104)	-0.025 (0.099)	0.184 (0.070)**	0.008 (0.183)
Macs Per Cap.	0.070 (0.001)**	0.027 (0.001)**	0.035 (0.003)**	0.239 (0.015)**
Year 1998	-0.391 (0.050)**	-0.201 (0.044)**	0.169 (0.037)**	-0.718 (0.083)**
Year 1999	-0.285 (0.053)**	-0.108 (0.046)**	0.186 (0.037)**	-0.546 (0.090)**
Year 2000	-0.415 (0.050)**	-0.380 (0.044)**	-0.373 (0.037)**	-0.574 (0.087)**
Year 2001	-0.477 (0.051)**	-0.304 (0.045)**	-0.212 (0.038)**	-0.692 (0.085)**
Year 2002	-0.774 (0.050)**	-0.527 (0.044)**	-0.718 (0.037)**	-1.072 (0.086)**
	Random Parameters			
	Constant			
Intercept	-1.696 (0.099)**	-0.572 (0.099)**	-1.146 (0.081)**	-2.323 (0.187)**
Std. Deviation	0.124 (0.014)**	0.051 (0.013)**	0.813 (0.011)**	0.126 (0.026)**
	Per Capita US Box			
Intercept	1.229 (0.027)**	1.301 (0.026)**	1.439 (0.020)**	1.146 (0.046)**
Std. Deviation	0.383 (0.001)**	0.420 (0.009)**	0.378 (0.008)**	0.343 (0.018)**
Disturbance S.D.	0.964	0.447	0.326	1.170
Log Likelihood	-3068.505	-515.445	-516.638	-1660.805
Sample Size	2198	597	559	1042

[a] * (**) Indicates significant at 95% (99%) significance level.

The number of McDonald's per capita remains a strong predictor of a film's performance for all three-language groupings. Genre effects revealed some important differences that were not evident in the initial analysis (Table 2, both fixed and random parameters models). Fantasy and family continued to be significant with the same sign as in Table 2. However, the positive effect of fantasy was only evident in English and German-speaking countries and the negative effect of family only in German and Spanish-speaking countries. The coefficients for drama and comedy were not significant when language and cultural distance were in the equation (Table 2). Without language and cultural distance in the equation, drama was significantly negative for all countries combined (Table 4, column labeled "All"), for English-speaking, and German-speaking countries, but not for Spanish-speaking countries. Comedy had a negative impact for all countries, but this was significant only in Spanish-speaking countries. Romance was not significant in the aggregate analysis but was positively related to performance for the German-language group and negatively related for the Spanish-language group. Adventure films did significantly better in German-speaking countries. Animation had not been significant in the overall analysis, but had a negative effect in German speaking countries. Thriller films did significantly worse in English-speaking and German-speaking countries. Mystery, science fiction and horror films did significantly better in German-speaking countries. Finally, action and science fiction films performed the same across all groups.

Overall, genre effects were most pronounced in German-speaking countries with 10 of the 12 genres having a significant effect. These effects are somewhat different from Neelamegham and Chintagunta (1999), but do reflect the same mixed pattern of certain

genres being significant in some countries and not in others.. They looked at only five genres and examined the effects for individual countries, rather than country groupings. More genres allows for a more precise match between the film and its genre, while grouping the countries may mask individual country differences.

The year effect evident in the initial analysis (Table 2) was also evident in the country-grouping analyses. The year dummy coefficients were all significant and negative. The significant year effect suggests some erosion in the overall performance of US films in foreign markets. However, given the extremely strong performance of US films in 1997, it may simply suggest atypicality in that year and a more typical relationship in the other five. This may also reflect a difference in the mix of genres of films released into foreign markets and the variation in their underlying appeal to foreign audiences.

6. Discussion

A key finding of the study is that performance of US films in their domestic market was found to be a strong predictor of their success in foreign markets. This is consistent with the findings of previous studies (Neelamegham and Chintagunta 1999, Elberse and Eliashberg 2002). More significantly, US films were substantially more successful in culturally proximate countries than in those that were culturally distant. This was reinforced by the finding that films performed better in English-speaking countries. This provides support for hypotheses 1 and 3 and confirms that cultural context is an important factor in determining the success of culturally sensitive products. Thus, not only does the cultural connotation of a product need to be considered in evaluating its success, but also its compatibility with the cultural context in which it is launched.

The greater the degree of Americanization of a culture, as reflected in the number of McDonald's per capita, the more likely US films were to be successful. Insofar as US films reflect US culture they are more likely to be successful in cultures that have already embraced the symbols and ethos of American culture. This is a rather intriguing finding using an innovative measure that may ultimately prove useful as a more general surrogate for the likely success of products that have a strong US identity.

The findings also have a number of important implications for studio executives and film distributors both in terms of where US films are most likely to be successful and which genre of film is likely to be most successful depending on the language grouping. However, at the same time the underlying heterogeneity of films suggests that each film performs differently and that different factors underlie the success or failure of individual films. Managers should take this into consideration and assess relevant factors for each film independently.

Additional promotional efforts, taking into account the popularity of different genres, may also be necessary to ensure successful performance of films in other countries. This is particularly marked in German-speaking countries where 10 out of the 12 genres were significantly more or less successful. In German-speaking countries, romance, comedy, fantasy, adventure, mystery, and horror were all likely to be more successful than other genres, while drama, family, animated and thriller genre were likely to be less successful. This is somewhat counter to what might be expected *a priori* as drama and family genres may reflect cultural values, mores and life styles, while animated and thriller genres may be less anchored in a particular culture. The results with regard to thrillers are particularly surprising given that adventure, mystery and science

fiction and horror which on the surface would all appear to be similar to thriller, were all more likely to be successful in German-speaking countries. This suggest that in the case of drama, family, animated and thriller films, distributors should promote the film based on the secondary or tertiary classification in Germany and Austria, where these fall into genre categories that are more likely to be successful.

In English-speaking countries nine of the 12 genres enjoyed the same degree of success as they did in the US. Fantasy films were more likely to be successful. However, as in Germany, drama and thriller genre were less likely to be successful, suggesting that these genres should be de-emphasized in favor of the secondary or tertiary genres. This is somewhat surprising given the overall success of US films in English-speaking countries. One might reasonably expect that these genres would also be successful. However, it may indicate that the type of drama and thriller may be uniquely American and hence not translate effectively into other English-speaking cultures.

In Spanish-speaking countries, none of the genres were particularly likely to be more successful than others suggesting a general acceptance of American films in Spanish cultures. Three genres were, however, significantly likely to be less successful, romance, comedy and family. Again this may reflect differences in the concepts of romance, comedy and family between US and Spanish culture. In particular Spanish concepts of family tend to focus around the extended family as compared with the nuclear family in the US. Equally, concepts of comedy may differ. Concepts of romance may also differ with greater emphasis placed on traditional concepts of romance in which the male takes the initiative and dominates a romantic relations, while the female play a more traditional, responsive and submissive role than in the typical modern US romance.

6.1. Future Research

The present study was limited by the availability of data. It would be useful to examine a broader range of countries to assess the generality of the impact of culture on the performance of US films in a broader array of foreign markets. Data on three major film markets, France, Italy and Japan, were not available for the analysis. The addition of Japan and other Asian countries would introduce a very different cultural perspective. Also inclusion of more countries might help further explain the role of language on film performance.

It would also be intriguing to reverse the study and determine whether foreign films perform better in the US, if they are from countries that are culturally closer to the US. This would be more difficult as foreign films in the US are generally relegated to art houses and appeal to a relatively narrow audience. It would also be useful to construct country-specific models to enable studio executives to refine their expectations and marketing efforts even more.

7. Conclusion

Culture matters in important ways that are salient for products with significant cultural content. The present study focused on films, quintessential experience goods that are rich in cultural content and symbolic meaning. However, films are not the only product with cultural content and symbolic meaning. Entertainment products such as television shows, music, theater, dance and opera are equally replete with cultural content. In addition, products such as sports, games and household décor reflect strong cultural influences (Costa and Bamossy 1995, Gannon 2001). Other products and brands, such as Coca-Cola, Marlboro, sushi, futons and fish and chips, are all seen as symbols of

the culture from which they emanate (Ritzer 2002). While largely neglected to date, the results of the present study suggest that the cultural context is an important factor to consider, both in understanding and predicting the success of culturally embedded products. In particular, cultural distance from the US and the degree of Americanization appear to be particularly fruitful avenues to explore in predicting the success of US products that contain significant cultural content.

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Success or failure of new products is influenced by many factors ranging from product design, customer response to the marketing strategy used to launch the new product. Often there is a tendency to focus on product characteristics and marketing strategy variables and their influence on new product success as these are more readily measurable. Less attention has been paid to the cultural context or cultural characteristics of the product in order to understand their impact on new product success.

Genre also influences the likelihood of a film's success in foreign markets, although the nature of the effect varied considerably. Again, the overall pattern is consistent with the findings of Neelemegham and Chintagunta (1999), but the results cannot be directly compared. One genre, action, had no effect, suggesting that action films that do well in the US will do equally well in other countries. Six genres were significant across two language grouping. In German-speaking countries all but one of the genres was significant. This suggests a much greater sensitivity to cultural nuances than in the other language groupings. Fantasy films performed significantly better in German-speaking and English-speaking countries while in the Spanish-speaking countries there was no effect. Drama and thriller films had less appeal in German and English-speaking countries. The coefficients for romance and comedy were significant in German-speaking and English speaking countries, but the signs were reversed. In Germany-speaking countries, romance and comedy has positive coefficients while in Spanish-speaking countries, the coefficients were negative. Adventure, action, mystery, science fiction and horror films were more popular in German-speaking countries, while animated films were less popular. Family films had less appeal outside the US, although the coefficients were significant for only the German-speaking and Spanish-speaking countries.

The dominance of US films in world markets together with the extent to which they reflect US values gives rise to a number of issues relating to the success of US films in international markets. Insofar as US films reflect US cultural values one may expect they are likely to be more successful in countries and markets which are closer in terms of cultural values to the US and those which have adopted other US products. Conversely, the expectation is that US films would be less successful in countries that are culturally distant from the US.

Films of different genres may also vary in the extent to which they are successful in foreign markets. Fantasy, action and adventure films, may, for example, be more likely to appeal to audiences worldwide insofar as they tap universal values and interests and do not reflect the day-to-day context of a particular culture or location. Further, they are more visual and rely less on dialogue to communicate with the audience and hence suffer less from the dubbing and comprehension issues. Family, romance and comedy films, on the other hand, which are embedded in a specific social context, are less likely to travel well.