

Exporting Movies: Political Affinity, Release Strategy, and Performance

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Abstract. We examine the release strategy and performance of movies produced in country i and exhibited in country j . Our theoretical model implies that cultural proximity and demand potential are substitute factors in the movie-release decision: the closer countries i and j are the more likely i 's movies are released in j during a period of low demand. Moreover, everything else constant cultural proximity leads to better performance.

We test our predictions with a data set comprising 10,585 feature films produced in 84 different countries and distributed in 59 different countries. As a country distance variable, we use a well-known measure of political affinity which is subject to yearly exogenous shocks.

The empirical results confirm the theory with regression coefficients that are both statistically and economically significant: a unit change in the affinity variable (e.g., from uncorrelated to perfectly aligned political preferences) leads to a 31.7% increase in box-office revenues (or \$5.6 million per movie) and a 7.9% decrease in the probability of releasing the film on a high-grossing weekend.

1. Introduction

It is common wisdom that the level of economic exchange between two countries is correlated with their “proximity.” In the international trade economics literature, this is encapsulated in the so-called *gravity equation*, which posits a level of bilateral trade proportional to measures of country size and inversely proportional to distance measures. For example, Eaton and Kortum (2002) consider measures of proximity such as sharing a border, sharing a language or belonging to the same trade area, and confirm the gravity equation with data on bilateral trade in manufactures among 19 OECD countries in 1990.

Most of the trade literature focuses on commodities and manufactures. A tantalizing possibility is that a similar logic applies to cultural goods as well.¹ The idea is that, whereas for physical goods measures of physical distance are relatively more important, in the case of cultural goods other intangible, more culture-related measures of distance, become relatively more important. For example, Craig et al. (2005) show that American “films perform better in countries that are culturally closer to the U.S. and those that have a higher degree of Americanization.”

As frequently is the case, such association between culture and market exchange raises interpretation issues: is it a case of causality or simply correlation? And if there is causality, which way does it run? For example: are Canadians “close” to the French because they watch French movies; or do Canadians watch French movies because they are “close” to the French; or none of the above?

An inquiry into this relationship is not simply a matter of intellectual curiosity. For example, Disdier et al. (2010) use trade in cultural goods as a proxy for countries’ cultural proximity to show that countries with proximate cultural tastes have more intense bilateral trade. They then go on to state that “regulations fostering domestic cultural creation might have impacts going beyond what is generally expected” (meaning that “cultural creation” might increase bilateral trade).

In this paper, we study — theoretically and empirically — the export of a movie from country i into country j . We are interested in understanding how export performance and export strategy — in particular movie-release strategy — depend on the cultural proximity of countries i and j .

We develop a theoretical model of movie supply and demand. On the demand side, we consider two important features. First, consumers are more aware of movies originating in countries with greater affinity. Second, in a given period movies compete for a fixed number of moviegoers. On the supply side, we assume that each movie must choose a release date taking into account the movie’s demand in the particular market as well as beliefs regarding the other movies’ release strategies.

We show that, in equilibrium, a foreign movie from a “closer” country is likely to perform better in the foreign country. This is not surprising and we use as a sanity check of both the theoretical model and the empirical regressions. More importantly, we also show that distance has implications for release strategy: the closer two countries are, the more likely a movie is released during a low-demand weekend. Intuitively, a movie’s release strategy trades off greater awareness during high-demand weekends against greater competition during those same weekends. All things equal, movies from closer countries fare better

1. Eurostat defines cultural goods as “products of artistic creativity that convey artistic, symbolic and aesthetic values; examples are antiques, works of art, books, newspapers, photos, films and music.”

in terms of consumer awareness, which in turn tips the balance in favor of lower-demand weekends.

The empirical portion of our paper tests these theoretical predictions and obtains additional results. We consider a particular cultural good, feature movies, and a specific measure of proximity between countries, political affinity. Specifically, we measure each country pair’s voting behavior at the United Nations over time. Before proceeding, we should note that political preferences — in particular the way we measure them — correspond to a very small fraction of a given country’s makeup. Moreover, the proximity between two countries involves many dimensions — economic, cultural, etc. — that go beyond political affinity. For the purpose of our empirical exercise, the important identifying assumption is that political affinity contributes to proximity more broadly defined. For example, Spain and Venezuela can be said to be culturally close on a variety of dimensions, including language and history. In the current state of affairs, the two countries cannot be said to be politically close. Our point is that, were Venezuela to change its political regime to one that is closer to Spain, we would say the two countries become even closer; and such increase in political affinity would be measured (with noise) by the country pair’s United Nations voting behavior.

Specifically, we employ a well known annual bilateral measure from the political science literature (Signorino and Ritter, 1999) that captures the affinity between countries and ranges from -1 (negatively correlated political preferences) to $+1$ (perfectly aligned political preferences). We then use changes in this measure as an instrument for shocks in political affinity (and ultimately for shocks in proximity) within each country pair.

Following this identification strategy, we first confirm the hypothesis that proximity increases the performance of country i ’s exports in country j . This is not entirely surprising, and follows prior economics, strategy and marketing studies. Here, our main contribution is to offer some of the first causal evidence by exploiting exogenous variation in our cross-country affinity measure.

We find that the box office performance of films is higher when the country of origin and country of destination become politically closer. We estimate (with reasonably high statistical precision) that a unit change in the affinity variable (e.g., from uncorrelated to perfectly aligned) leads to a 31.7% increase in box-office revenues (or \$5.6 million per movie).

In addition to measuring export performance, we also examine each movie’s export strategy. Specifically, we focus on one of the most important decisions in movie supply: the choice of a release date. A number of authors have studied the domestic dimension of a movie’s release strategy (Kridler and Weinberg, 1998; Einav, 2010). By contrast, we focus on the choice of release date in overseas markets. In particular, we examine the relation between country proximity and the timing of a movie release. We estimate that a one-unit increase in political affinity implies a 7.9% *decrease* in the probability of releasing the film during a high-grossing weekend. We also find that films from a politically closer country are released with relatively shorter lag with respect to the world premiere.

■ **Related literature.** At a very broad level, our paper is related to the international trade literature on the gravity equation; see Anderson (2011) for a survey. That stream of research has focused primarily on commodities and manufactured goods; and the measure of distance is typically related to physical distance or other variables which impact transportation costs.

By contrast, we consider a specific cultural good — feature movies — and a distance measure that seems more related to demand than to cost conditions.

The literature on strategy and international business has given significant attention to the liability of foreignness (Zaheer, 1995, Cuervo-Cazurra et al., 2007). Conceptually, our study contributes a framework to better understand the market-specific competitive scenarios faced by firms operating abroad (Gimeno et al., 2005, Ghemawat and Thomas, 2008). Empirically, our use of political changes gives substance to Ghemawat’s (2007) assertion that significant political differences hinder the flattening of international barriers around the world. Our key finding that foreign-market demand shocks and bilateral political affinity changes are substitute factors in strategic release decisions offers new insight into the complex relation between strategy and globalization.

We are not the first to use U.N. voting data as a measure of proximity. Stone (2004) shows that African countries which are close (in the U.N.-voting sense) to developed-country patrons are subject to less rigorous enforcement of IMF contracts. Simmons (2005) estimates a gravity model of bilateral trade, claiming that “foreign policy comity should be associated with more extensive bilateral economic relations.” She uses the same U.N.-voting index, claiming that “while hardly a perfect measure, ... it captures the underlying degree of ‘affinity’ between country pairs.” Finally, Bertrand et al. (2016) argue — and confirm empirically — that lower political affinity increases the likelihood that a host government intervene against foreign acquirers, which in turn leads the latter to increase their initial acquisition premium.

There is an economics, strategy and marketing strategy literature dealing with the international performance of motion pictures — see Neelamegham and Chintagunta (1999), Elberse and Eliashberg (2003), Craig et al. (2005). Kim and Jensen (2014) is particularly germane to our paper. They consider a large sample of films produced and distributed domestically and internationally in Europe between 2004 and 2009 and find that domestic commercial performance and film festival participation increase international film success, but also that their effects depend on the cultural distance between countries and the use of major or independent distribution in the domestic and foreign markets.

Regarding the measurement of cultural distance, our paper differs in that we use an annual measure, which allows us to measure yearly shocks (which, we argue, correspond to exogenous changes). Moreover, our analysis goes beyond measuring sales impact and includes the effect of cultural proximity on the distributors’ overseas strategy, namely in terms of release time. In this respect, our paper is related to an economics, marketing and strategy literature dealing with the release-date game; see Krider and Weinberg (1998) and Einav (2010). To the best of our knowledge, ours is one of the first papers to study the issue of release timing in an international context.

■ **Roadmap.** The rest of the paper is organized as follows. In Section 2 we propose a simple model of movie demand and supply which provides fairly sharp predictions regarding the relation between cultural proximity and the performance of a domestic movie in a foreign market, as well as the movie-release strategy followed in the foreign market. Section 3 describes the data we use in our empirical tests, whereas Section 4 presents the results of a series of tests. Finally, Section 5 concludes the paper.

2. Theory

Consider the market for movie exhibition in a given country and in a given year. For simplicity, we assume the number of movies is sufficiently large that we may treat it as a continuous variable. Specifically, there is a measure n of movies, which we will also refer to as number of movies. Movies originate from m countries competing for theater demand. We assume price and advertising expenditures are fixed, so that the sole strategy by distributors is to decide when to release the movie. As shown by Einav (2007), there are a select few weekends throughout the year when demand is particularly high. To capture this variation, we assume that there are two release dates: $t = 1, 2$; we assume that $t = 2$ corresponds to a high-demand period.

Consumer demand is a function of a time dependent factor, α_t , and a movie culture affinity factor, β_i , where i is the movie's country of origin. Notice that α varies over time t , whereas β is a function of the movie's origin (country i).

A movie from country i released at time t is in a consumer's consideration set with probability equal to $s_{it} \equiv \alpha_t + \beta_i$. This modeling assumption implies that time-specific and country-specific demand effects enter the demand function additively. We could consider functional forms that imply, by assumption that α and β interact positively or negatively. Our assumption has the advantage of not stacking the cards one way or another, thus allowing for a sharper intuition regarding the relation between proximity, performance and release strategy.

A consumer's choice at time t consists of a simple rule: to choose one of the movies in its consideration set, each with equal probability. If no movie is in the consumer's consideration set, then no movie is watched. Cabral and Natividad (2016) shows that such an awareness model of moviegoer demand fits reasonably well various patterns of movie demand, namely the relation between first-week and subsequent-weeks demand. Given this demand system, the payoff from releasing at time t is proportional to $s_{it} / \sum s_{jt}$, where j corresponds to all movies released at time t .

Our modeling strategy reflects the assumption that viewers may be aware of a movie's existence in different ways. Specifically, during a period of high demand (e.g., the holiday season), a number of consumers decides to go to the movies, with each consumer becoming informed of the list of existing movies. By contrast, during a period of low demand, the same consumers only become aware of a movie's existence as a result of their special interests. An approximate way of modeling this setting is to assume that each consumer is β_i likely to become aware of a movie's existence as a result of her special interests; and, during a period of high demand, is $\Delta \alpha_t$ more likely to be aware of the movie simply by looking at the list of available movies, where $\Delta \alpha_t$ is the difference in the value of α with respect to a low-demand period.

Our demand system, while simple in structure, implies an important trade-off in a movie's release strategy: releasing a movie during a high-demand period ($t = 2$) improves the chances that consumers will be aware of the movie's existence. However, by releasing during that period the movie's distributor will be competing against a stronger field. How does a movie's β reflect on its release strategy, and ultimately on its performance? We next derive some implications from the model which address these issues.

■ **Affinity and demand.** Our first result relates cultural affinity to overseas movie perfor-

mance.

Proposition 1. *An increase in cultural affinity between country i and country j implies an increase in country i movie sales in country j*

Proof: A movie’s payoff is given by

$$\max_t \left\{ \frac{\alpha_t + \beta}{n_t (\alpha_t + \bar{\beta}_t)} \right\}$$

Both elements of the max function ($t = 1, 2$) are increasing in β . It follows that payoff is increasing in β . ■

Proposition 1 corresponds to the well-known result from the movie industry — and more generally from the trade literature — that cultural proximity translates into greater trade flows (Neelamegham and Chintagunta, 1999; Elberse and Eliashberg, 2003; Craig et al., 2005). We do not consider it as a central result in our paper but rather as a test that a theoretical model should pass.

■ **Affinity and release strategy.** Differently from Proposition 1, our next theoretical results provide sharp predictions regarding the relation between cultural affinity and movie release strategy. As mentioned above, the choice of release date is one of the most important aspects of a movie’s marketing strategy. As Krider and Weinberg (1998) put it,

The extremely short life cycle and the rapid decay in revenues after opening coupled with the rapid and frequent introduction of new competitive products makes the timing of new product introductions in the motion picture industry critical, particularly during the high-revenue Christmas and summer season.

The literature on release-date strategy that we are aware of largely focuses on the date of domestic release. By contrast, we are interested in a movie’s overseas release strategy. Our main result is as follows.

Proposition 2. *An increase in cultural affinity between country i and country j implies that country i movies are more likely to be released in country j at time $t = 1$.*

Proof: Let β' be the value of β of a movie that is indifferent between a release at $t = 1$ and a release at $t = 2$. In equilibrium, it must be that

$$\frac{\alpha_1 + \beta'}{n_1 (\alpha_1 + \bar{\beta}_1)} = \frac{\alpha_2 + \beta'}{n_2 (\alpha_2 + \bar{\beta}_2)} \quad (1)$$

Rearranging, we get

$$\frac{n_2 (\alpha_2 + \bar{\beta}_2)}{n_1 (\alpha_1 + \bar{\beta}_1)} = \frac{\alpha_2 + \beta'}{\alpha_1 + \beta'}$$

Since $\alpha_2 > \alpha_1$, it follows that $n_2 (\alpha_2 + \bar{\beta}_2) > n_1 (\alpha_1 + \bar{\beta}_1)$. The derivative of each side of (1) with respect to β' is given by

$$\frac{1}{n_i (\alpha_i + \bar{\beta}_i)}$$

Since $n_2 (\alpha_2 + \bar{\beta}_2) > n_1 (\alpha_1 + \bar{\beta}_1)$, it follows that the derivative of the left-hand side of (1) is greater than that of the right-hand side. This finally implies that a β_i movie chooses $t = 1$ if and only if $\beta_i > \beta'$. ■

Intuitively, a period of greater demand attracts more movie openings (Einav, 2007). This means that the relative value of a movie with greater specific demand is lower during a high-demand period: it has to compete against more competing movies. In other words, Proposition 2 formally establishes that high-demand during a given period and high movie-specific awareness are substitute factors: the greater the level of general demand in a given period, the lower the marginal effect of an increase in movie-specific awareness.

To rephrase the result with an example, suppose that Iran and France have a higher-than-average level of political affinity. An Iranian movie will feature well in France regardless of when it is released: many moviegoers will be aware of the movie's existence. That being the case, the Iranian distributor prefers to release the movie during a period of low general demand: such release strategy allows diminishes competition without sacrificing much in terms of awareness.

Lest Proposition 2 seem trivial and obvious, we note that, in a similar but different setup, Krider and Weinberg (1998) provide the opposite prediction. Their movie-release game considers the simultaneous choice by two movies with different levels of attraction. Although there may exist multiple equilibria to their game, their results suggest that, when the two players and the two periods are sufficiently asymmetric, the more appealing movie tends to open during the high-season, whereas the weak movie prefers to avoid head-to-head competition.

To see this, consider a simplified version of the game they consider. There are two periods, $t = t_1, t_2$, and two movies, 1 and 2. Market size at time t is given by m_t . A movie's appeal is given by a_i , $i = 1, 2$. If movie i is the only to open in a given period, then it captures all of the market demand, m_t . If the two movies open in the same period, then movie i 's demand is given by $m_t a_i / (a_1 + a_2)$. The movie-release game is then given by

		Movie 2	
		t_1	t_2
Movie 1	t_1	$\frac{m_1 a_2}{a_1 + a_2}$	m_2
	t_2	m_1	$\frac{m_2 a_2}{a_1 + a_2}$
		m_2	$\frac{m_2 a_1}{a_1 + a_2}$

Suppose $a_2 > a_1$, that is, movie 2 has greater appeal; and $m_2 > m_1$, that is, the second period has greater appeal (as in our model). It can be seen that, if

$$\frac{m_2 a_1}{a_1 + a_2} < m_1 < \frac{m_2 a_2}{a_1 + a_2} \quad (2)$$

then the game admits a unique Nash equilibrium: (t_1, t_2) ; that is, the higher-appeal movie chooses to open during the high-demand period. Intuitively, the second inequality in (2) implies that, for the better movie, choosing the high-demand period is a *dominant strategy*: even if the rival movie chooses the high-demand period, the high-demand movie chooses the same period, with the certainty that, even facing contemporaneous competition it is better to open when there is more demand.

This prediction is the opposite of what our Proposition 2 indicates. What explains the difference? Our model is based on the idea of consumer awareness, whereas Krider and Weinberg’s (1998) is based on the idea of movie quality. However, given the stylized way in which demand is modeled, this is not a relevant difference. In fact, in both cases there is a movie-specific characteristic that moves demand, as well as a multiplicative time-specific demand factor. We thus conclude that the difference between the two approaches is not the way demand is modeled.

The important difference between our approach and Krider and Weinberg’s (1998) is that they consider (a) two players, as opposed to a continuum of players; and (b) a large asymmetry between the two players. Considering the number of movies vying for attention in a given country and in a given year, we believe the assumption of a continuum of players is a better approximation than the two-player case.² Accordingly, we propose that movie-specific demand shocks and time specific demand shocks are “strategic substitutes”, as Proposition 2 suggests, rather than “strategic complements”, as the result in Krider and Weinberg (1998) suggests.

3. Data

We assembled our database on global box office revenues and movie production from two main sources, both of which are publicly available online. First, Box Office Mojo records weekend box office revenues on feature films shown in 62 countries from 2001 to 2015; we sum over all weeks of each film for our yearly analysis, though in some tests we also exploit the weekly dynamics of performance in this setting.

Second, the Internet Movie Database (IMDb) details the nationality of production companies behind feature films. For clarity, we exclude from the sample any cross-border-production films, that is, those made by production companies based on different countries. Our resulting data set thus includes 10,585 distinct feature films from 84 production countries and distributed in 59 destination countries in the sample period of interest.

To supplement the evidence on the impact of cultural affinity shocks on movie performance, we also employ proprietary data (purchased from Nielsen) on DVD sales in the U.S. based on content produced in 103 countries and released between 2000 and 2009. These DVDs are not restricted to feature films — they include TV and cable content — yet no international sales data on DVDs are available.

The United Nations voting data we use to construct a measure of political affinity are drawn from Voeten et al. (2017) repository publicly available online. This data set contains the roll call votes of all countries in the U.N. General Assembly over the sample period for the global film sales data set described above. The similarity variable S that proxies for the affinity between countries (Signorino and Ritter, 1999) is a statistic that describes the similarity between the voting patterns of two countries in the U.N. General Assembly. For each country i voting on resolution r , define $P_r^i = 1$ if the country votes “Yes”, $P_r^i = 0$ if it

2. The Krider and Weinberg (1998) model is probably a better description of competition between two blockbuster movies such as Warner Bros’ *Harry Potter and the Deathly Hallows: Part I* and Fox’s *The Chronicles of Narnia: The Voyage of the Dawn Treader*. Both were released in 2010, with the Narnia movie selecting December and the Potter movie November. Both are periods of high demand, with December marginally better in terms of total demand. Even then, the level of asymmetry between the two players does seem to justify the result of a unique Nash equilibrium. Most likely there were two pure-strategy Nash equilibria.

votes “Abstain” and $P_r^i = -1$ if it votes “No”. Thus, considering two countries i and j in year t , their bilateral affinity measure is defined as:

$$S_{ijt} = 1 - \frac{2 \sum_{r=1}^R |P_r^i - P_r^j|}{2R}, \quad (3)$$

where R is the total number of resolutions in year t . The measure S takes values between -1 and $+1$, with higher values of S reflecting more similar voting patterns between the two countries. By construction, $S_{iit}=1$, that is, the affinity between a country and itself, is always 1.

How well does this measure capture the affinity between two countries? The vast literature following Signorino and Ritter (1999) is arguably a testament to its usefulness, but one might ask whether this variable correlates well with other measures of bilateral affinity for our period of interest. Unfortunately, the only alternative time-varying proxy for bilateral trust employed in the literature was available in the Eurobarometer survey and ended in 1997, a few years before our start date. That variable recorded answers to a survey of citizens from various developed countries.³ We merge information on those answers for 1997 with the S variable for 1997 and find, reassuringly, a correlation coefficient of 0.14, with a p -value of 0.027. We thus see S as a reasonable proxy for bilateral affinity in light of other measurement approaches.

4. Results

Propositions 1 and 2 imply specific predictions regarding the effects of cultural affinity on box-office success as well as on movie-release strategy. Our first goal in this section is to test these implications directly. We then offer additional empirical results which help better understand the nature of the effects of greater affinity between two countries.

■ **Performance.** A chief difficulty in studying cultural proximity is that potentially many country-level (or country-pair) factors are unobservable, so it is important to keep fixed as many dimensions as possible in the analysis of cultural shifters. Our design is thus centered on *political affinity shocks*: for any given pair of countries in the data, we define this shock as the change in the political affinity variable S from year $t - 2$ to year $t - 1$:

$$D_{ij(t-1)} \equiv S_{ij(t-1)} - S_{ij(t-2)}$$

where i denotes the producing country, j the country of exhibition, and t the time period.⁴ Specifically, we consider the following demand equation:

$$B_{jft} = \alpha + \beta D_{ij(t-1)} + \theta_{ij} + \lambda_{jt} + \xi_f + \epsilon_{jft}, \quad (4)$$

where B is box office revenue of movie title f when shown in country j in year t . As explanatory variables, we include

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3. The phrasing of the question is: “I would like to ask you a question about how much trust you have in people from various countries. For each, please tell me whether you tend to trust them or tend not to trust them.”
 4. Garmaise and Natividad (2013) provide evidence on how these political affinity shocks can be traced to various national events that drive the affinity distance between countries farther or closer.

- $D_{ij(t-1)}$: the political-affinity shock, as described above
- θ_{ij} : country-pair fixed effect
- λ_{jt} : country-year fixed effect
- ξ_f : movie title specific effect

We also include a constant α and an error term ϵ_{jft} (country-, movie- and year-specific). The coefficient β thus captures the impact of political affinity shocks on box office outcomes, after holding various key dimensions fixed.

Table 2 show the results of tests following different variations of specification (4). The analysis is conducted at the country-film-year level. In a given market, defined as a combination of destination country j and year t , outcomes may not be assumed to be independent from one another, so we cluster standard errors at the market level. The full sample size of 41,436 observations is reduced whenever fixed effects are not calculated due to singleton cases.

The first model (first column) takes the log of box-office revenues as a dependent variable (box-office revenues are measured in million dollars). We are particularly interested in the estimate of β , the coefficient on the political affinity shock. An estimate of .317 indicates that a one-unit change in the independent variable (e.g., from neutrality to perfect alignment) leads approximately to a 31.7% increase in movie i 's revenues in market j . The second model measures the dependent variable in levels. The coefficient estimate of 5.565 now indicates that the one-unit increase in political affinity leads to a \$5.6 million increase in revenues (in market j alone). In both cases the coefficient on political affinity is statistically significant at the 5% level.

Gross revenues is not the only — nor necessarily the most appropriate — performance measure. It is well known that box-office revenues are largely determined by the number of screens in which a movie is shown. For this reason, our third model takes box-office revenue *per screen* as a performance dependent variable. A one-unit increase in political affinity leads to an increase in per-screen revenues of about half a million dollars. (Sample size is reduced by about 40%, given the lack of complete data on the number of screens.) In other words, the third regression suggests that movies do better in “close” markets for reasons that go beyond the number of screens in which they open.

Finally, the fourth regression addresses the possibility of “U.S. exceptionalism” when it comes to movie exhibition. The visibility and tradition of the American film industry raises the question of whether the impact of international affinity is significantly different in the U.S. territory (that is, when country j is the U.S.) or for American movies (that is, when country i is the U.S.). In order to address this possibility, we reestimate model (1) by adding an interaction term corresponding to political affinity shocks in the U.S. (that is, a dummy variable that equals 1 when the destination market is the U.S.). The corresponding coefficient is not significantly different from zero. We also considered models (not tabulated for brevity) with a dummy corresponding to the U.S. as a production country (country i) and models with both dummies corresponding to production and exhibition. In all cases, the corresponding coefficients were not different from zero.

■ **Release strategies.** As mentioned earlier, we are interested in the effect of affinity not only on performance but also on release strategies. The choice of a movie’s release date is one of the most important components of a distributor’s strategy. Previous research

has focused on the domestic market’s release strategy (Kridler and Weinberg, 1998; Einav, 2010). By contrast, we focus on a movie’s international release strategy. As shown in previous work (Einav, 2007), demand for movies is highly seasonal, with a select number of “hot” weekends throughout the year (in the U.S., mostly around the summer and the November/December holiday season).

In order to address this issue, we define, for each country and year, the top five weekends as those that had the highest gross revenues in the previous year.⁵ We also define as high-demand weekend the weekend chronologically posterior to those top five weekends.⁶ We then ask the following question regarding international release strategy: how likely is a movie to open overseas during a high-demand weekend?

The first column of Table 3 provides an answer. As before, we are particularly interested in the independent variable “political affinity shock.” The results suggest that the closer two countries are the less likely a movie from country i is likely to open during a top weekend in country j . Specifically, a one-unit change in the independent variable (e.g., from neutrality to perfect alignment) leads to a 7.9% decrease in the probability a movie opens during a top weekend. In order to better evaluate this change in percentage, note that the average fraction of movies opening during a top weekend is 14.9%.

This result is consistent with our theoretical prediction. As mentioned in Section 2, proximity between country i and country j (which we measure by political affinity) is a *substitute* for demand, so that a movie from a less familiar country is more likely to be shown during a high-demand weekend (everything else constant).

A different decision faced by distributors is how quickly to release a movie in country j with respect to its world premiere. This lag, measured in weeks, is the dependent variable in the second column of Table 3. Political affinity shocks have a negative and significant effect on the weeks of lag, equivalent to about two weeks more proximate release date when a affinity switches from 0 to 1.

We do not have a sharp theoretical prediction regarding the exhibition lag strategy. That said, suppose that each movie is released in the home country (i) at the beginning of each year (or at the end of the previous year). Then the release decision in country $j \neq i$ may be rephrased as a trade-off between early release ($t = 1$) or late release ($t = 2$). Proposition 2 then implies that, if we consider two identical countries except for their cultural affinity with country i , a distributor optimally releases the movie earlier in the country that is “farther” from the home country, as suggested by the results in the second column in Table 3.

As mentioned in the previous section, the prediction that movies from a country “farther away” from j are more likely to be shown in high-demand weekends is surprising — and apparently counter to the conventional wisdom from prior literature on release-date strategy. Intuitively, the idea is that, in a model of moviegoer awareness, time demand shocks and prior awareness are substitute factors in determining the release date.

Our theoretical hypothesis is that if country j is closer to country i , then country j ’s moviegoers are more likely to be aware of the existence of a movie from country i . If this consumer-awareness hypothesis is correct, then we would expect the effect of country proximity to be lower in the weeks after a movie from country i is released in country j .

5. Einav (2007) shows, with U.S. data, that high supply meets high demand, that is, the weekends of highest demand are also the weekends when the biggest blockbusters are released. This suggested that, in equilibrium, the highest-grossing weekends are the ones with highest demand (that is, the supply effect reinforces the demand effect).

6. Our coding convention is robust to alternative definitions of top weekend.

The idea is that, once a movie is released, word of mouth and other related effects (e.g., press reviews) provide a primary source of information for potential moviegoers. In other words, actual theatrical exhibition acts as an “equalizer:” once two separate movies open in a given weekend, differences in political affinity of their countries of origin become relatively less important.

Table 4 provides evidence in this regard. We estimate a series of equations where the dependent variable is box-office revenues by screen in the first, second, third and fourth week of exhibition in country j of a firm originating in country i . As before, the explanatory variable of interest is political affinity between country i and country j . Consistent with an awareness-base theory of the effect of political affinity, we notice a declining trend in the value of the estimated coefficient.

■ **Evidence from DVD sales.** Our last set of results pertains to a different but related market: DVD sales. A significant fraction of DVD sales correspond to feature movies. Consequently, we expect the pattern that applies to movies also to apply to DVDs, namely with respect to the effect of political affinity on the performance of a title from country i when sold in country j .

Our results are based on a data set on DVD sales in the U.S. during the period 2000–2009. The analysis is done at the DVD title-year level for all DVD titles released in the sample period, totaling 842,810 observations.

The results are shown in Table 5. The first model follows approximately (4). The performance measure (the dependent variable) is now the logarithm of DVD unit sales in the U.S., and markets are defined as genre-year combinations (for fixed effects and the clustering of standard errors). The coefficient of interest (political affinity shocks) is statistically significant and positive in sign, as one would expect. It suggests that a one-unit change in the independent variable (e.g., from neutrality to perfect alignment) leads to a 112.9% increase in movie i ’s revenues in market j .

The second column shows the results of a test using the weighted average of the price of DVD titles sold as the dependent variable, using a smaller sample than for quantities given the sparser availability of price information in our data source. The results show no significant impact of the political affinity shock on DVD prices. While our theoretical predictions did not imply a price movement following closer affinity (in fact, movies are cultural goods with flat prices), the evidence of no impact is useful when considering that a demand surge may not increase the equilibrium price if the supply curve is relatively flat, as would be expected of goods with marginal cost near zero.

The third column in Table 5 provides an extension of our analysis of feature movies. About one quarter of all DVD sales correspond to feature movies; the remaining observations correspond to documentaries and other cultural goods. An interesting question is whether the evidence we find for movies is extensible to other cultural goods. The third column in Table 5 restricts the first regression to observations not corresponding to movies. The point estimate appears to be at least as large as for the general case of content pooled across any release sources, and the restricted sample is a significantly large fraction (77%) of the complete sample, suggesting an important role of political affinity shocks in the performance of these related yet different cultural goods.

5. Conclusion

Following the widely-cited work by Hofstede (1984), an extensive literature has derived and tested a number of implications of cultural distance for international business (see Kirkman et al., 2006 for a survey). These include foreign investment expansion, entry mode choice, and the performance of foreign invested affiliates, among others. Generally speaking, the thrust of this literature is that the closer two countries are, the more “aggressive” an entry strategy should be.

Our paper relates to this literature in that we look at the “entry” of a domestic movie into a foreign market. In contrast with previous research, our theoretical and empirical results suggest that the closer two countries are, the less inclined a distributor is to release its movie during a period of high demand. In other words, foreign-market demand shocks and cultural proximity are substitute factors in the movie release decision.

Table 1
Summary statistics

variable	N	mean	sd	p1	p99
Log box office	44,988.00	-2.18	2.50	-8.37	3.49
Box office revenue (US\$M)	44,988.00	1.82	9.89	0.00	32.71
Box office / N. screen (millions per thousand)	27,616.00	2.08	2.71	0.06	10.46
Political affinity shock	41,436.00	-0.00	0.09	-0.20	0.31

Table 2
Bilateral affinity shocks and box office performance

Dependent variable:	Log Box Office	Box Office	Box Office / N. screens	Log Box Office
Political Affinity Shock	0.317** (0.13)	5.565** (2.43)	0.495*** (0.17)	0.300** (0.14)
...× destination is U.S.				0.215 (0.74)
Country pair fixed effects	Yes	Yes	Yes	Yes
Destination country-year fixed effects	Yes	Yes	Yes	Yes
Film dummies	Yes	Yes	Yes	Yes
Adjusted R2	0.69	0.17	0.52	0.69
N. obs	35374	35374	20860	35374
N. clusters	617	617	436	617

Table 3

Bilateral affinity shocks and release strategies

Dependent variable:	Release on Top Box Office Wkd. (0/1)	Weeks of Lag from World Premiere
Political Affinity Shock	-0.079** (0.03)	-2.356** (1.01)
Country pair fixed effects	Yes	Yes
Destination country-year fixed effects	Yes	Yes
Film dummies	Yes	Yes
Adjusted R^2	0.08	0.99
N. obs	35374	35374
N. clusters	617	617

Table 4
Effects on box office per screen over time

Dependent variable:	Box Office 1st Wkd. / Screens 1st Wkd.	Box Office 2nd Wkd. / Screens 2nd Wkd.	Box Office 3rd Wkd. / Screens 3rd Wkd.	Box Office 4th Wkd. / Screens 4th Wkd.
Political Affinity Shock	1.270*** (0.49)	0.940*** (0.31)	0.417* (0.23)	0.395** (0.19)
Country pair fixed effects	Yes	Yes	Yes	Yes
Destination country-year fixed effects	Yes	Yes	Yes	Yes
Film dummies	Yes	Yes	Yes	Yes
Adjusted R^2	0.44	0.43	0.36	0.45
N. obs	20684	18099	15418	12718
N. clusters	423	418	417	414

Table 5

Effects of bilateral affinity shocks with respect to the US on DVD sales

Dependent variable:	Log DVD Unit Sales	Weighted DVD Prices	Log DVD Unit Sales on content not feature films
Political Affinity Shock	1.129** (0.56)	1.089 (0.99)	1.355** (0.67)
Genre-year fixed effects	Yes	Yes	Yes
DVD title dummies	Yes	Yes	Yes
Adjusted R2	0.51	0.87	0.42
N. obs	842810	120130	648536
N. clusters	153	153	153

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