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AMERICAN BEAUTY:
TRADE FLOWS AND EXPORT COSTS OF US MOVIES

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American Beauty: trade flows and export costs of US movies

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Abstract

Copyright industries face global fixed export costs, in terms of cultural and geographic distance together with formal trade barriers. Adjustment to these costs may occur along both the intensive and the extensive margin. We investigate this issue using a microeconomic approach that considers a hedonic model of revenues for US movie exports to evaluate: aggregation bias; simultaneity in the observation of imported movies and their revenues; and reliable estimations for country clusters. We find that product heterogeneity is a key element for both intensive and extensive margin adjustments at the country level.

Keywords: trade, export costs, movie industry

JEL Classification: L82, F14

1 Introduction

This article investigates recent issues in international trade literature on export costs: how much countries characteristics and product heterogeneity impact on the extensive (numbers of products exported) and intensive (value of trade per product) margins.
In a framework with firm heterogeneity and high fixed costs, only large and highly productive firms choose to export (Bernard and Jensen, 1999, 2004 and Melitz, 2003). Hanson and Xiang (2011) document that in this scenario: "adjustment in trade volumes may occur along both the intensive margin and extensive margin".Their paper analyzes whether this paradigm also applies to fixed costs in the information service sector, by estimating intensive and extensive margin adjustments at the country level, for US motion picture data. Their argument is that production costs are typically incurred in the country of production instead of the country of consumption, while transportation costs in the service industry are close to nil. Moreover, additional marketing costs incurred for exports are likely to add much more to revenues than to costs (Marvasti and Canterbery, 2005).
However, these industries can face other types of fixed costs that are more global. They would be related to establishing an international network in the exporting countries and could be expressed as a function of cultural and geographic distances, as well as other measures of trade barriers. Adjustment to these types of cost should occur along the intensive rather than the extensive margin and their empirical results are consistent with this hypothesis. They show that the numbers of movies imported in nations like Argentina and Germany are relatively similar whereas large differences can be observed in the box offices revenues in the two countries. In addition, their estimation of two equations for the number of US movies and the ratio of revenues to movies, reveals that the nature of fixed export costs is global and consistent with intensive margin adjustment.
We explore this issue with a microeconomic approach by estimating a hedonic model of US movies revenues in foreign markets. Using a database of 1152 movies exhibited in 45 countries[1] between 2004 and 2013, we study the factors that affect the probability of exhibition (extensive margin) and box office revenues (intensive margin) within a Heckit framework.[2]

[1]Countries included in the sample are: Argentina, Australia, Austria, Belgium, Brazil, Bulgaria, Chile, China, Colombia, Croatia, Czech Republic, Denmark, Dominican Republic, Ecuador, Egypt, Estonia, Finland, France, Germany, Greece, Hungary, India, Indonesia, Israel, Italy, Jamaica, Japan, Kuwait, Malaysia, Mexico, Netherlands, New Zealand, Norway, Portugal, Russia, Slovakia, Slovenia, South Africa, South Korea, Spain, Sweden, Thailand, Turkey, United Kingdom, Uruguay.

[2]This topic has been addressed, for a smaller group of countries, in previous papers such as Fu and Lee (2008) for Singapore, Lee (2008, 2009) for East Asian countries and Walls and McKenzie (2012) for a group of six developed countries. The latter also

To preview the results, we find that in general the nature of the cost is contingent on the type of country. Thus, we present evidence of intensive margin adjustments for more developed nations that are culturally close to the US. At the other extreme are less developed countries that are also relatively distant from the American culture. In this case, the results are consistent with the presence of extensive adjustments due to the high fixed costs induced by cultural distance. The last group consists of either less developed countries that are culturally close to the US or developed countries that are relatively distant from American culture. In this case, we find the presence of extensive margin adjustments, but, due to the limited size of the market, the expected revenue of introducing new American movies is a decreasing function of their probability of arrival. Moreover, preliminary data analysis and estimation results give evidence of the impact of movies idiosyncratic characteristics on both extensive and intensive margins, highlighting that product heterogeneity is a crucial aspect in production companies export strategies.

The Heckman approach and the use of such a detailed information set, is relevant for at least three reasons. First, a country estimation framework could potentially be affected by an aggregation bias problem since it cannot control the large heterogeneity of films with different features in terms of quality, genre and content. The proposed approach is also useful to determine the relative importance for these factors in the intensive and extensive margin adjustments. In addition, the fact that the number of movies exhibited and their revenues are simultaneously observed can produce a bias problem in a regression for the two variables at the country level. Instead, the estimation of a Heckit model allows to estimate the adjustment of US films at the intensive and extensive margin in separate equations. Therefore, the primary equation contains country-specific trend components in order to control for unobserved national characteristics such as trade barriers or national film production, as well as the inverse Mills ratio to check for other potential sources of self selection. Model identification is achieved by considering information on whether the most similar movie to each given film, the nearest neighbor, was exhibited in that country two years earlier. A final reason to follow a microeconomic approach at the film level is that the large number of observations make it possible to consider sound estimations for specific clusters of countries.

The Next section presents the methodological framework and estimation strategy. In section 3 we review the dataset and discuss the preliminary results, while section 4 presents the estimation of the model. Final conclusions are drawn in the last segment of the paper.

implements the Heckman procedure.

2 Methodology

We analyze the intensive and extensive margin adjustments in the context of the US movie industry by estimating a hedonic model of revenues. A general approach in the literature is to explain film success as a function of production budgets, awards and different features of the film such as sequels, genre, content and so on.[3] This approach is particularly sound when it is applied to countries other than the US, given that although the different explanatory indicators may fail to be exogenous in the American market (due to effects caused by the expected revenue) they can generally be considered as exogenous with respect to the revenue in each foreign country.

Each movie is observed in one particular year only, so it is not possible to specify a dynamic panel model. However, should be noted that the average box office revenue for each country could be affected by an unobserved specific trend component of domestic film production or national business cycle. Therefore, our baseline specification explains the revenue of a film in a country j (in logs and adjusted for inflation) as a function of three main groups of variables: (1) indicators for the quality of the film, the budget and award nominations, where the former is a measure of the production effort and the latter is a proxy of the artistic quality; (2) variables related to the different features of the film in order to determine how these features impact its success; and (3) a national trend component. The following model is considered

$$\begin{aligned} ln\ revenue_{ij} = \beta_0 &+ \beta_1 ln\ budget_i + \beta_2 nomination_i + \beta_3 G_i + \beta_4 PG_i + \beta_5 R_i \\ &+ \beta_6 sequel_i + \beta_7 sequel2_i + \beta_8 drama_i + \beta_9 action_i + \beta_{10} thriller_i \\ &+ \beta_{11} original_i + \gamma_{jt} + \varepsilon_{ij} \end{aligned} \tag{1}$$

where i and j stand for film and country respectively, the terms β_r for $r = 1$ to 11 are parameters of the model, γ_{jt} is a specific fixed effect component for country j at time t and ε_{ij} is an error term.[4]

Despite the fact that our national specific trend component already controls for the impact of other variables not included in the model at the country level[5], the potential problem of an endogenous sample selection is still possible, given that the probability of exhibition could be a function of some film-specific shadow costs or features. This may lead to inconsistent estimates of the coefficients in a model that accounts for film revenues if

[3] See McKenzie (2012) and the references therein

[4] The variables $PG13_i$ and $comedy_i$ are left outside of the age rating and genre groups, respectively, to avoid perfect multicollinearity

[5] Such as, for example, total production or demand in the national movie industry or the degree of protective legislation for the national industry.

the shocks that affect the probability that a given movie is exhibited in a certain country are highly correlated with the shocks that determine its revenue. Based on this premise, we employ Heckman's (1979) two-step methodology. In the first step, we estimate a probit model (selection equation) for the probability that a film is exhibited in a given country. This approach allows us to obtain the Mills ratios that are necessary to correct the OLS estimates of the primary equation in stage two.

To identify the model, it is necessary to choose at least one variable to be included in the selection equation only at the first stage. A natural choice of instrument is to define a variable that takes value one when the most similar movie was shown in that country two years before and zero otherwise. From statistical learning field we adopt the K-Nearest Neighbor approach[6] to define a variable that minimizes the canonical distance of each film from all of the other movies released in a country two years prior using all of the covariates defined in equation (1). In this way, we are able to identify similar movies across the sample given their quality and idiosyncratic features, such as genre, content and source.

To implement the nearest neighbor, the first two years of the dataset (2003 and 2004) are drawn out of the sample and used as a training population to instruct the algorithm, thus reducing the test sample to 1152 movies. Using a dummy variable, we assign value of 1 if the most similar movie was released in the same country two years before, that is choosing a single neighbor for each case.[7] The time lag is set based on the average time of production of a movie, so that production companies can react properly to the performance of previously released films and strategically choose what types of movies to promote in different markets.

In section 4, we examine the estimation results for several clusters of countries around two dimensions: Human Development Index (HDI henceforth) and cultural distance (CD henceforth). The HDI is an index created by the United Nations that summarizes measures of average achievement in key dimensions of human development: standards of living, education, life expectancy, quality of life and also information on the per capita GDP for each country.

To capture information about the cultural distance between the US and each of the countries in the sample, we follow Lee (2009) and implement a value-based index developed by Hofstede (1980) that is built around four dimensions: 1) *power distance*, which expresses the degree to which the less powerful members of a society accept and expect that power is dis-

[6]See Altman (1992).

[7]We have also tested for broader neighbors, $k = 3$ and $k = 5$, and did not find any improvements in the quality of our analysis. The results of this experiments and all of the other estimations not explicitly reported in this paper can be obtained from the authors upon request.

tributed unequally; 2) *uncertainty avoidance*, which expresses the degree to which the members of a society feel uncomfortable with uncertainty and ambiguity; 3) *individualism versus collectivism* and 4) *masculinity versus femininity*. We gathered this information from Hofstede (2001) and then each country's cultural distance from the United States was computed using Kogut and Singh's (1988) formula:

$$CD_j = \sum_{I=1} \left\{ (I_{ij} - I_{iu})^2 / V_i \right\} /4 \tag{2}$$

where CD_j is the cultural distance of country j from the United States, I_{ij} is the value for country j on the ith cultural dimension (I_{iu} for the US) and V_i is the variance of the ith cultural dimension. Last, in order to evaluate geographic distance (GD) we use data from CEPII's GeoDist database[8] and in particular weighted distances between countries, calculated on bilateral distances of the biggest cities of two countries and those inter-city distances being weighted by the share of the city in the overall country's population.

3 Data

We evaluate the demand for US movies in 45 countries using the box office revenues of 1152 films released over the period from 2004-2013. Data on box office revenues are available from boxofficemojo.com. We consider two types of variables, quality variables, such as production budget (adjusted for inflation, base year 2013) and Academy Awards nominations in one or more of the main categories: best movie, best director, best actor or actress in a leading or supporting role or best animation movie, and variables of the idiosyncratic features of each title, in particular genres, MPAA ratings[9] , sequels and sources. We gathered these data from opusdata.com and imdb.com, while production budget information comes from thenumbers.com[10].

We stress the fact that our data focus on countries that span the whole planet, with broad variance in terms of holiday periods and weather that

[8]See *Notes on CEPII's distance measures: The GeoDist database, Mayer and Zignano (2011)*

[9]Movie ratings provide parents with advance information about the content of movies to help them determine what is appropriate for their children. They are used in our sample as a proxy of the content of a movie in terms of violence, sex etc. *G* stands for General Audiences; *PG* stands for Parental Guidance Suggested; *PG-13* stands for Parents Strongly Cautioned; *R* stands for Restricted, Under 17 requires accompanying parent or adult guardian

[10]See http://www.the-numbers.com/movie/budgets/all

could affect local demand and potentially lead to differences in the theatrical release dates of movies (see Einav 2007, 2010 and Belleflamme and Paolini, 2015). Therefore, we choose not to explicitly address seasonality issues and timing strategies applied by distribution companies to maximize the box office performance of their products.

INSERT TABLE 1 HERE

INSERT FIGURE 1 HERE

Table 1 shows the descriptive statistics for the variables under analysis for the whole sample period. Note that excluding production budget, all of the others are dichotomous variables.
Figure 1 plots log revenues per US movies against log number of movies exhibited by each country between 2004 and 2013 (expressed as deviation from the sample mean). The graph shows variation among both the extensive and intensive margin. The phenomenon is greater for the latter, however the presence of several countries that import far fewer movies with respect to the sample mean (705 movies) like China, Dominican Republic, India, Jamaica and Kuwait. Should be noted, for what concerns China, this can be explained with strong trade barriers that limit movies import at 20 per year.

INSERT FIGURE 2 HERE

Figure 2 expands this analysis of intensive and extensive margins adjustments dividing US movies by genres (action, comedy, drama and thriller). Plots give evidence of broad variation in both the extensive and intensive margins for comedies and dramas, while action and thrillers movies are more clustered around the means in the number of movies imported and the relative box office revenues. We can interpret these patterns from the perspective of product heterogeneity: comedies and dramas exhibit stronger correlation to American culture in terms of themes, characters and humor. In the econometric analysis of section 4 we consider this heterogeneity in order to identify possible shadow costs at the film level.
Another aspect to take into account when looking at movies characteristics, and therefore at the implicit heterogeneity, is the production budget. Left plot in figure 3 fits the extensive margin against the log production budget (again expressed as deviation from the sample mean) and shows a strong statistical significance with a negative slope. This suggests that countries that import fewer movies tend to prefer those with relatively higher bud-

gets[11].

INSERT FIGURE 3 HERE

The correlation between box office revenues and production budgets is weak and not statistically significant, suggesting that budget alone cannot explain movie success and we need to pair it with other idiosyncratic characteristics of a motion picture (genres, sequel and so on). This evidence is coherent with the results of DeVany (2004) where it is found that the relationship between a motion picture's cost and revenue is wildly unpredictable compared to other investments due to the heterogeneity in movie performance with box office revenues exhibiting heavy right tails.[12]

INSERT FIGURE 4 HERE

To turn our attention to importing countries characteristics, in figure 4 we consider the role of cultural distance from the US and human development attainments. With the sole exception of HDI against the number of US movies imported, which suggests that more developed countries have a bigger market size for foreign products, CD and HDI alone cannot explain trade at the macro level. This is coherent with the findings in Hanson and Xiang (2011) concerning linguistic dissimilarities and geographic distance from the US.
The methodological framework presented in the previous section grant us the possibility to fully explore the determinants of American motion pictures in foreign markets.

4 Results

The first two columns of table 3 show the estimation results of model (1) in a pool regression for the 45 countries in the sample for both the selection and primary equations. The statistical significance of the coefficient associated with the inverse Mills ratio suggests the possible presence of sample selection bias. Its negative sign is consistent with the assumption that, in

[11]For countries with strong trade barriers, like China, an alternative explanation could be that production companies offer a limited pool of movies to choose from, in particular big budget titles for which higher revenues are expected.

[12]In the words of the author: "The movie industry is a profoundly uncertain business. The probability distributions of movie box office revenues and profits are characterized by heavy tails and infinite variance! It is hard to imagine making choices in more difficult circumstances. Past success does not predict future success. Forecasts of expected revenues are meaningless because the possibilities do not converge on a mean; they diverge over the entire outcome space with an infinite variance. This explains precisely why "nobody knows anything" in the movie business".

some countries, the demand for American movies has a constrained size, which implies that a saturation of the market can occur, thus lowering the expected revenue for each movie exhibited.
To control for the potential correlation of the error term in the primary and the selection equations we also considered the Mundlak-Chamberlain approach as proposed by Wooldridge (2010), but it showed no qualitative change in the estimated results. For the sake of brevity, in this paper, we show our baseline specification which is based on a unique estimated inverse Mills ratio for the entire sample period.
When we look at movie-specific variables, the relevant and positive impact of covariates on quality (production budget and Academy Awards nominations) can be observed in both the probability of exhibition and the revenue. As for genres, a global preference for action and thriller movies emerges with respect to the reference category of comedies. This result is consistent with the findings of Lee (2009) and the empirical evidence (see The Economist 2011[13]) that American humor does not sell well in markets that exhibit a broad cultural distance from the United States. Moreover, the positive impact that sequels and subsequent movies in a series have on revenues confirms the validity of Hollywood's actual strategy to invest in existing intellectual proprieties instead of introducing new, original products into the market. The validity of this strategy is supported by the small magnitude of the coefficient associated with original screenplays which refer to movies in which the plot and characters are not part of a previous intellectual propriety (e.g. books, comics or video games).

INSERT TABLE 2 HERE

Columns 3 and 4 of Table 2 show model (1) augmented by some typical indicators of distance that have also been considered in the literature, geographic distance (GD), HDI and CD . According to Hanson and Xian (2011), distance indicators should exert a more significant impact on the intensive margin (primary equation) than on the extensive one (selection equation). It can be observed that this proposition is only true in the case of GD which is only significant in the primary equation, while cultural distance is a relevant variable in both equations. This result suggests that it is CD, and not GD, that represents an important bilateral fixed shadow cost to introduce a movie in a given country. In addition, the estimated model suggests that not only distance indicators but also the degree of development of a country is an important variable in determining both the number of films exhibited and their expected revenues.
However, from data analysis in section 3, we recall that CD and HDI alone cannot explain movies success, an aspect here confirmed by the associated

[13]"*Hollywood goes global. Bigger Abroad.*" The Economist, Feb 17th 2011.

t-statistics, which we further explore performing a Shapley Value analysis[14]. This approach allows us to disentangle the R^2 by groups of variables to evaluate their relative impact on the model. We find that countries characteristics (CD, HDI and GD) globally account for less than 1% of the R^2, while the Inverse Mills Ratio, that represents the selection hazard, explains 23% of the goodness of fit of the model and movie related variables impact for 77%.

INSERT TABLE 3 HERE

Previous results do not exclude the possibility of different types of adjustments at the intensive and extensive margins for different clusters of countries. To control for these aspects, we break down the total sample of countries according to their HDI and CD (the most significant indicators of distance) and show the estimation of equation (1) for the different clusters of countries in Table 3. In this case, the results from the probit model estimation are not reported for the sake of brevity, but the results show that the qualitative impact of all the variables is similar to their estimated effect in the primary equation. In general, according to the estimation results, we can split the countries into three large groups when we consider intensive and extensive margins adjustments.
First, countries with a low CD and a high HDI are characterized by intensive margin adjustment dominance (we cannot reject the random sample null hypothesis). In fact, it is reasonable to assume that these countries have low fixed costs and large markets where there is room for a substantial number of American films. The second relevant group of countries is that with a high CD and a high HDI. In this case, the results are consistent with the presence of extensive adjustments due to the high fixed costs induced by cultural distance. However, in this case, the estimated positive coefficient associated with the inverse Mills ratio, indicates a positive relationship between the probability of film arrival and its revenue, which is consistent with the presence of a large national market for films. Finally, the last group is composed of countries with a low HDI, regardless of their CD, in which there is evidence of sample selection bias with a negative inverse Mills ratio coefficient. Due to the presence of high fixed costs or the small size of the national market, the expected revenue of introducing new American films is a decreasing function of their probability of arrival. For what concerns movie specific variables and how groups of countries react to them, we can draw several conclusions: first of all, the impact of quality (expressed by Academy Awards nominations) is greater for more developed countries, while production budgets positively affect box office revenues in a similar way for all countries groups. In addition, we can

[14]See Huettner and Sunder (2012).

see that producing sequels is a profitable strategy in each type of market, but promoting a series (third and subsequent movies in a franchise) grants bigger revenues in more developed countries.

5 Discussion

Copyright industries face fixed export costs due to cultural and geographic distances with importing countries, along with trade barriers. We study how these costs impact the number of products exported and the relative value per trade with a microeconomic approach by estimating a hedonic model of US movies revenues in foreign markets. This strategy delivers an improved quality of the econometric estimations and, more importantly, allows us to estimate intensive and extensive margins adjustments for different clusters of countries.

Recent contributions in the field show that "trade in movies adjusts primarily along the intensive margin. Even small countries import a large number of US movies, leaving only modest variation in the extensive margin of trade" (Hanson and Xiang, 2011). We give evidence of adjustments in the extensive margin when controlling for heterogeneity at the film level: countries in the sample exhibit different tastes for different genres with a broad variation in the number of movies imported for comedies and dramas.

Estimation results for clusters of countries built around cultural distance and human development attainment dimensions are characterized by intensive margin adjustment dominance, explained by wide differences in the impact of movies idiosyncratic characteristics. These findings suggest that product heterogeneity is a key element when evaluating trade costs in the information service sector, given its impact on both the number of products exported and the associated trade value. Therefore some interesting topics for future research consist of extending this type of analysis to other copyright industries or exploring the implications of these results for different marketing strategies of American film producers.

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Tables

Table 1: Movies Descriptive Statistics (2002-2013)

variable	**N**	**mean**	**std. deviation**	**min**	**max**
budget (adjusted)	1392	57.077	53.545	0.016	336.900
genres					
drama	1392	0.230	.	0	1
comedy	1392	0.319		0	1
action	1392	0.277		0	1
thriller	1392	0.174		0	1
ratings					
G	1392	0.023	.	0	1
PG	1392	0.166		0	1
PG-13	1392	0.421		0	1
R	1392	0.390		0	1
sequel	1392	0.116		0	1
sequel2	1392	0.062		0	1
nomination	1392	0.121		0	1
original screenplay	1392	0.497		0	1

Table 2: Determinants of movies revenues

	(1)		(2)	
	selection	primary	selection	primary
nearest neighbor	0.745*** (60.70)		0.677*** (53.64)	
HDI			1.305*** (3.86)	1.552*** (3.71)
cultural distance			-0.128*** (-27.94)	-0.0408*** (-6.88)
geographic distance			0.0239 (1.54)	-0.113*** (-6.18)
budget	0.283*** (35.20)	0.560*** (39.76)	0.297*** (36.11)	0.589*** (41.55)
nomination	0.480*** (23.12)	0.501*** (21.00)	0.495*** (23.72)	0.535*** (22.17)
sequel	0.113*** (4.91)	0.392*** (16.96)	0.124*** (5.32)	0.408*** (17.50)
sequel2	0.361*** (11.02)	0.463*** (17.55)	0.359*** (10.78)	0.471*** (17.84)
action	0.198*** (11.45)	0.285*** (13.57)	0.200*** (11.43)	0.299*** (14.22)
drama	-0.0409* (-2.30)	-0.202*** (-8.07)	-0.0418* (-2.34)	-0.205*** (-8.19)
thriller	0.247*** (13.63)	0.244*** (10.62)	0.256*** (14.03)	0.271*** (11.70)
G	-0.105* (-2.52)	0.158*** (3.99)	-0.106* (-2.53)	0.147*** (3.74)
PG	-0.0885*** (-5.00)	0.0884*** (4.34)	-0.0918*** (-5.16)	0.0818*** (4.02)
R	-0.0370** (-2.63)	-0.0517** (-3.06)	-0.0397** (-2.80)	-0.0560*** (-3.31)
original screenplay	0.0504*** (3.95)	0.0557*** (3.79)	0.0471*** (3.68)	0.0561*** (3.82)
Inverse Mills Ratio		-0.228*** (-5.80)		-0.101***(-2.32)
N	51840	31710	51840	31710
Pseudo R^2	0.147		0.158	
Adjusted R^2		0.307		0.310

Omitted: comedy, PG-13; t statistics in parentheses.
(*) $p < 0.05$, (**) $p < 0.01$, (***) $p < 0.001$

Table 3: Movies revenues - CD and HDI clusters

	low CD		high CD	
	low HDI	high HDI	low HDI	high HDI
Inverse Mills Ratio	-0.320*** (-4.42)	0.162 (1.81)	-0.242*** (-4.32)	0.995*** (4.49)
budget	0.525*** (18.97)	0.660*** (32.29)	0.526*** (30.19)	0.890*** (13.83)
nomination	0.321*** (4.93)	0.867*** (20.38)	0.247*** (6.94)	0.760*** (7.31)
sequel	0.395*** (5.67)	0.478*** (11.65)	0.373*** (10.25)	0.273*** (3.51)
sequel2	0.382*** (4.41)	0.598*** (11.44)	0.358*** (7.90)	0.765*** (7.52)
action	0.171** (3.14)	0.299*** (9.67)	0.315*** (10.70)	0.534*** (6.79)
drama	-0.330*** (-5.05)	-0.143*** (-4.07)	-0.283*** (-8.05)	-0.0586 (-0.78)
thriller	-0.0561 (-0.89)	0.280*** (7.93)	0.310*** (8.81)	0.599*** (6.34)
G	0.161 (1.18)	0.329*** (4.58)	-0.0378 (-0.56)	-0.0194 (-0.14)
PG	0.0739 (1.30)	0.0530 (1.63)	0.120*** (4.11)	-0.00807 (-0.12)
R	-0.0603 (-1.24)	0.0322 (1.20)	-0.145*** (-5.74)	-0.0630 (-1.18)
original screenplay	0.0696 (1.65)	0.0431 (1.82)	0.0730*** (3.31)	0.0617 (1.31)
N	2974	14448	10992	3296
Adjusted R^2	0.346	0.294	0.354	0.290

Omitted: comedy, PG-13; t statistics in parentheses.

(*) $p < 0.05$, (**) $p < 0.01$, (***) $p < 0.001$

Countries in each cluster: (1) Argentina, Dominican Republic, Hungary, India, Jamaica, South Africa.
(2) Australia, Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Israel, Italy, Netherlands, New Zealand, Norway, Poland, Spain, Sweden, United Kingdom.
(3) Brazil, Bulgaria, Chile, China, Colombia, Croatia, Ecuador, Egypt, Indonesia, Kuwait, Malaysia Mexico, Portugal, Russia, Thailand, Turkey, Uruguay.
(4) Greece, Japan, Slovakia, Slovenia, South Korea.

Figures

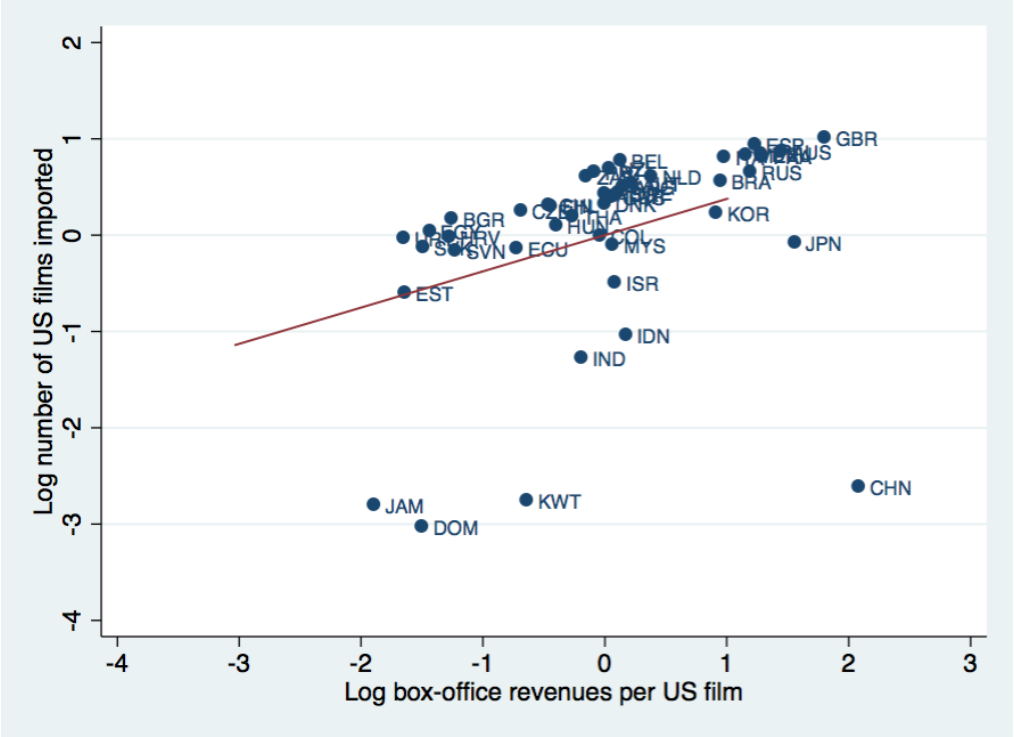

Figure 1: Intensive versus extensive margin of movie imports, 2004-2013

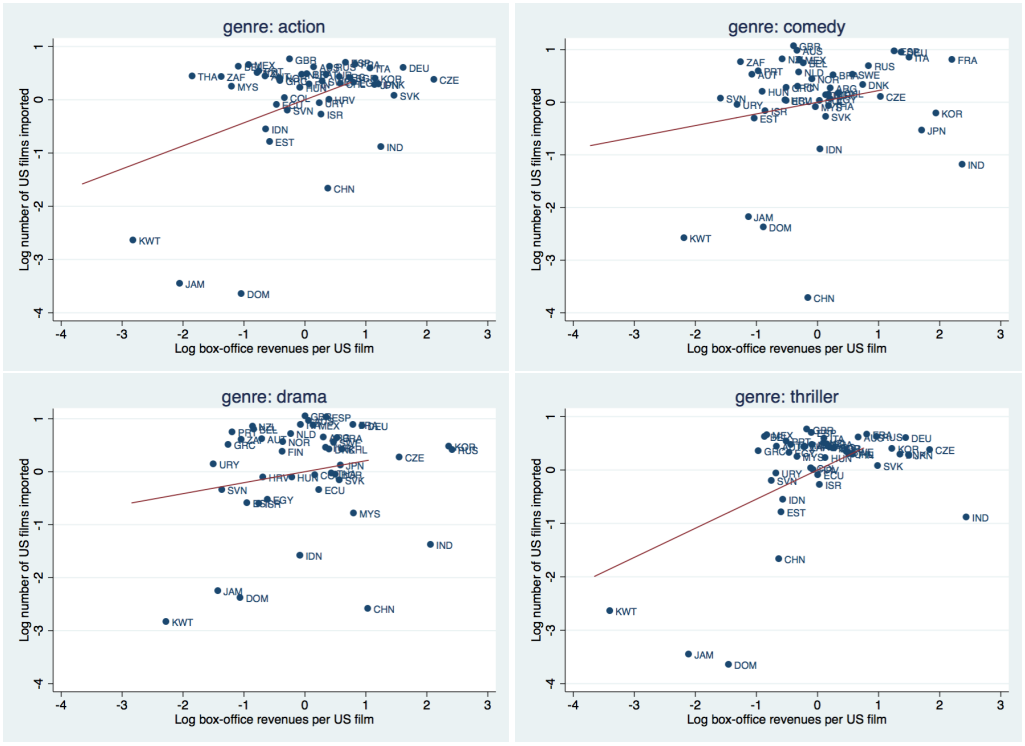

Figure 2: Intensive versus extensive margin of movie imports by genre, 2004-2013

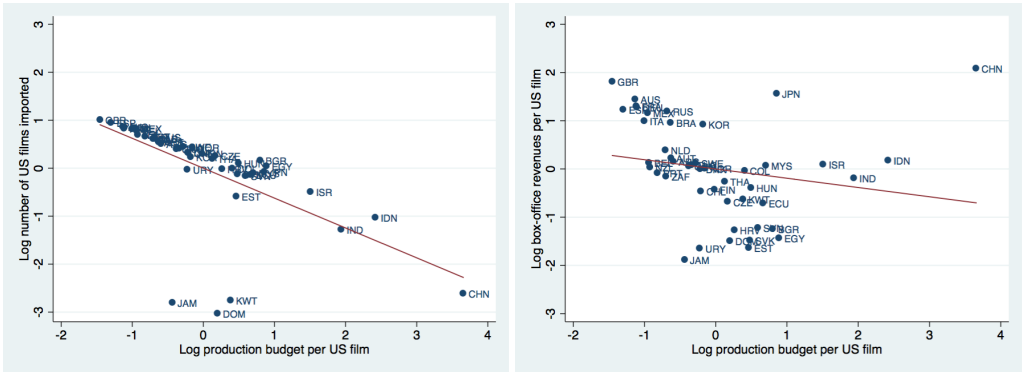

Figure 3: Intensive/extensive margin versus production budget, 2004-2013

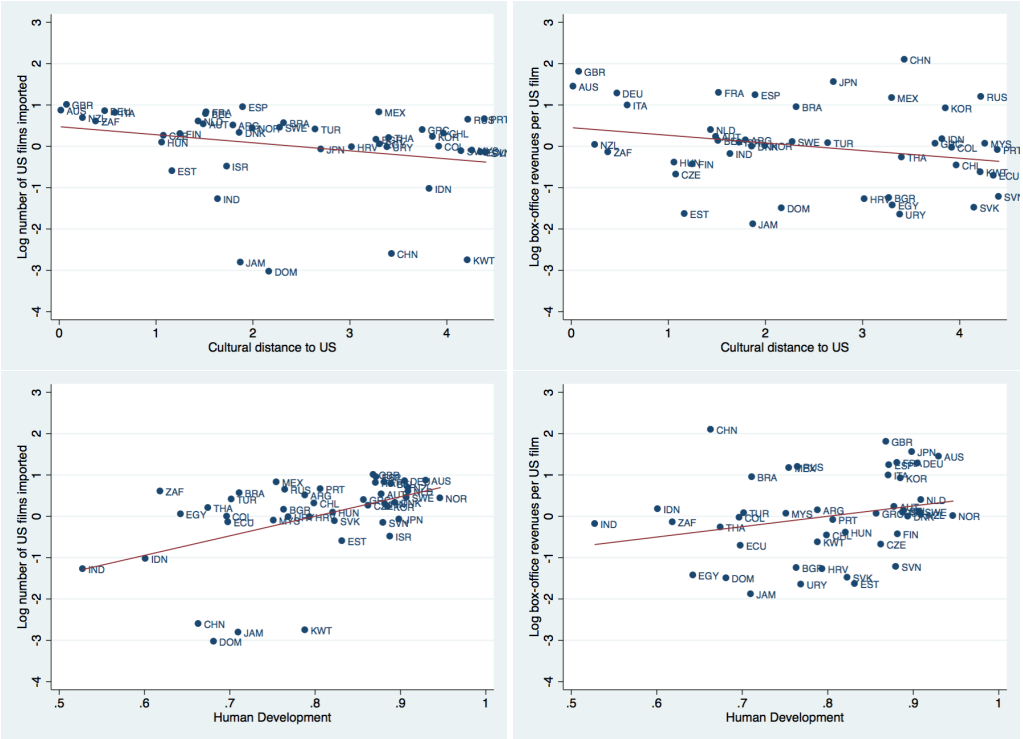

Figure 4: Intensive/extensive margin versus CD/HDI, 2004-2013

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