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Abstract

This paper using gravity model estimates the effect of 'Heads or Tails' TV show on outbound tourism in Ukraine. Our results indicate that country specific episode aired in the first week of January increases outbound Ukrainian tourism to that country by at least 49%. The same positive effect is valid for alternative regression models that account for presence of zero observations.

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1 Introduction

Television (TV) has transformed the way in which individuals work, communicate, and entertain themselves. The media communicated through TV has a wide reach and, as such, the potential to shapes cultural norms. Indeed, "television has been found to reflect and possibly shape the attitudes, values, and behaviors of … people" (Greeson, 1991). Specifically, the content broadcasted on TV has been linked with crime (Heath et al., 1986), mental abilities (Gortmaker et al., 1990), life satisfaction (Frey et al., 2007) and health outcomes (Sydney et al., 1996). For example, Kearney and Levine (2014), using Vital Statistics birth data, document that '16 and Pregnant' reality show reduced teen births by 5.7%. Using a randomized control trial design, Clifford et al. (2009) show that there is positive relationship between cooking TV shows and attitudes regarding fruit and vegetable intake.

Since the works of Cohen (1986),research on tourism has also attempted to empirically investigate the impact of TV viewing on tourists' choices. Tooke and Baker (1996) provide evidence for a link between the frequency of movies dealing with Australia and increases in the number of US tourists heading to that country. Similarly, Kim et al. (2007) find that broadcasts of Korean TV dramas in Japan increase the number of Japanese tourists going to Korea. In a follow up study, Kim et al. (2009) linked the export of Korean TV shows to the number of tourists' arriving in Korea. Most of these studies have found that visual media affects where would-be tourist would like to travel (Buttler, 1990) and has impacted international tourism demand (Kim, 2012). A major limitation of these studies is that these TV shows, movies and soap operas increase 'unplanned and sudden flow of tourists to an unprepared destination that film tourism creates' (Connell, 2012) while the role of tourism related entertainment TV shows on promoting tourist flows remains another promising avenue for research.

In this study, we investigate the impact of the TV show 'Heads and Tails' on Ukrainian outbound tourism. The popular travel show 'Heads and Tails', produced by Teen Spirit Studio and broadcasted in Ukraine on Inter TV, won the prestigious TAFFY award, for best TV show, in the Day Live category. 'Heads and Tails' was first aired on Inter in February 2011. Every weekend two hosts visit one city. According to the show's rules, one of them is given only 100$ to live for the weekend, while the other one is given a credit card with an unlimited credit line.

To decide which of the two will get the 100$, the host flips a coin – hence the shows name, "Heads and Tails". Over the first three years during which the show aired, 'Heads and Tails' participants traveled all over the planet – from nearby Europe to faraway lands, uncharted islands and remote mountain villages. The exciting adventures of 'Heads and Tails' participants have consistently enchanted viewers, resulting in high viewership ratings on all channels on which the show has been broadcasted.

2 Data and methods

Pioneered by Tinbergen (1962), the gravity model has been the most successful empirical trade model (Bergstrand, 1989; Frankel et al., 1996)[1]. The gravity model has been employed in migration (Karemera et al., 2000), commuting (Signorino et al., 2011), foreign direct investments (Carstensen & Toubal, 2004) and tourism (Gil-Pareja et al, 2007) related studies. The general formula of the model is:

[1] For a detailed explanation see Anderson (2010)

$$F_{ij} = g\frac{m_i m_j}{d^2_{ij}} \quad (1)$$

where F_{ij} is the trade flows between country *i* and *j*, m_i and m_j are the economic sizes of two countries, d_{ij} – is the distance between countries and g is the gravitational constant. In this study to investigate the impact of visa restrictions on tourist departures from the Ukraine, we use the following log-linear specification of a gravity-type model:

$$TA_{ijt} = \beta_1 + \beta_2 HT_{ijt} + X\lambda + \varepsilon_i \quad (2)$$

where the dependent variable is the natural log of average annual tourist departures (TA_{ij}) from Ukraine to country j in year t. Data on tourist departures is obtained from the State Statistics Service of Ukraine[2]. In our sample, reported outbound tourism ranges from 1 (Tanzania in the year 2010) to 7,000,000 (Poland in the year 2013). After excluding missing observations our sample consists of 93 countries.

In our econometric estimations, we rely on the variable *HT* to quantify the time over which "Heads and Tails" was broadcast. This variable is defined as:

$$HT = 1 \quad \frac{Number\ of\ days\ passed\ since\ January\ 1\ when\ TV\ show\ is\ aired}{365} \quad (3)$$

when there is more than one TV show shot on a given country-year, we add up the corresponding magnitudes.

Following the extant literature, we include a control variables (X), which acts as a proxy for travel costs, in our regression model; this was quantified as the natural log of the distance ($DISTANCE_{ij}$) between the capital of Ukraine (Kiev) and recipient country's capital.

In order to control for common political past we include a dummy variable for Russia ($RUSSIA_i$) and one for if Ukraine and the recipient country were part of the former Soviet Union ($USSR_i$). We also include a variable measuring the degree of political representation between countries ($REPRESENTATION_i$), which varies from 0 to 2 (both are represented in each other's country), and binary variables for when country i shares the same border with Ukraine ($BORDER_i$) and for when country i and Ukraine are both members of a regional trade agreements (RTA_{ij}) (Rose, 2007). Visa restrictions are indexed by a binary variable that takes the value 1 if dyad partner countries impose visa restrictions and zero otherwise. To control for the effect of market sizes we add the natural log of GDP per capita of country i (destination country) and the natural log of GDP per capita in Ukraine

Data on political past, distance and common borders were copied from the CEPII distance dataset. Distance was computed as the population-weighted great circle distance between large cities of the countries *i* and Ukraine. Information on political representation was copied from Bayer (2006), while data on RTA was retrieved from WTO (https://www.wto.org/). GDP per capita was taken from the World Bank dataset (http://data.worldbank.org/indicator/all). One of the econometric problems that arises in empirical estimations of the gravity model is the presence of zero observations. These observations remain undetermined in the log-linear transformation. Several strategies have been suggested to deal with the presence of zero observations (see e.g., Burger et al., 2009). The first approach is to discard zero values. In this case, OLS estimation can lead to biased results (Anderson, 2010). Alternatively, an ad-hoc approach is to replace zero observations with small values. Two dominant models for handling these problems are the Heckman sample selection model (Heckman, 1979) and the Tobit model (Tobin, 1958). In this study, we use all of the proposed avenues to test the robustness of our findings.

[2] http://www.ukrstat.gov.ua/

The simple correlations and descriptive statistics are reported in Table 1. The results show that there is positive correlation between outbound tourism and HT. All remaining correlation coefficients are in line with theoretical predictions.

Table 1: Summary statistics

Variable	Mean	Std. Dev.	Correlation with ln Tourism arrivals
ln Tourism arrivals	8.258	3.894	1.000
ln GDP per capita (destination country)	8.811	1.262	0.275
ln GDP per capita in Ukraine	8.747	0.024	0.117
ln DISTANCE	8.436	0.867	-0.584
Visa restrictions	0.730	0.444	-0.122
RTA	0.059	0.235	0.179
REPRESENTATION	0.475	0.777	0.659
BORDER	0.035	0.184	0.491
RUSSIA	0.005	0.071	0.217
USSR	0.060	0.238	0.154
HT	0.048	0.231	0.144

3 Results

Table 2 presents regression coefficients for tourism departures. Model (1) shows the OLS random effects estimation while Model (2) reports the OLS results using a fixed effects model. Concentrating first on the control variables, the coefficient for distance is negative and statistically significant at the1% level. Also, we find that common borders and diplomatic representation increases tourist arrivals. Turning to our variable of interest, the estimates show that the time over which "Heads and Tails" was broadcast is associated with as much as a 24.4% increase in outbound tourism. Model (3) and (4) present estimates for tourist departures based on Heckman selection and Tobit regressions, respectively. First, we find that the estimate for GDP per capita in sending country (Ukraine) is also insignificant. This may be particularly driven by the little variation in the per person GDP over the period 2010-2013. After controlling for the missing (censored) observations we document that GDP per capita in destination country is now statistically significant. In line with the predictions of gravity model, tourists from Ukraine prefer destinations with higher levels of GDP per capita after controlling for distance and diplomatic representation. The coefficients for HT are congruent in terms of sign and significance with the outcomes from OLS, albeit at a slightly lower level of significance. Overall, the evidence suggests that the effect of "Heads and Tails" on outbound tourism remains positive and reasonably robust across all regression models.

Table 2: Estimation results

	(1) Random Effects	(2) Fixed Effects	(3) Heckman selection	(4) Tobit
ln DISTANCE	-2.0052***		-4.8646***	-1.3628***
	(0.5134)		(0.5120)	(0.3113)
ln GDP per capita (Ukraine)	4.4705	4.8343	-4.4436	8.1176
	(3.0315)	(3.2069)	(4.0674)	(5.7038)
ln GDP per capita (destination)	0.3534	-0.6399	0.8398***	0.4070**
	(0.2183)	(0.9620)	(0.2889)	(0.1715)
Visa restrictions	-2.5536***		-2.4266***	-2.5414***
	(0.7351)		(0.7990)	(0.4579)
RTA	-1.4964		0.3307	-1.8687**
	(1.6841)		(1.8426)	(0.8488)
REPRESENTATION	2.5176***		3.5260***	2.1524***
	(0.3485)		(0.4891)	(0.2082)
BORDER	1.7063**		-2.0314	2.4283***
	(0.6981)		(1.6577)	(0.3861)
RUSSIA	1.0682		0.2795	1.0600
	(1.4792)		(4.0343)	(0.7427)
USSR	-0.5029		-1.7574	-0.3076
	(1.3599)		(1.6722)	(0.6420)
HT	0.2294**	0.2176***	0.6659*	0.6332*
	(0.0917)	(0.0703)	(0.3623)	(0.3686)
Constant	-20.0477	-27.8682	72.7336**	-56.5100
	(25.9849)	(25.5744)	(35.8356)	(49.6457)
N	286	286	677	733

Notes: Heteroskedasticity adjusted standard errors in parentheses;
* p<0.1, ** p<0.05, *** p<0.01

4 Conclusion

Can TV shows influence where tourists decide to travel and whether individuals do travel? Our data provides evidence for a positive association between tourist related TV shows and the rate of outbound tourism. Our results highlight the role of broadcast-induced tourism in popularizing destinations that are not promoted by conventional tourism promotional campaigns. This paper documents that, after controlling for a large set of traditional gravity model variables, outbound Ukrainian tourism is positively affected by the showing of 'Heads and Tails' by as much as 24.4%.

Past research suggests that film tourism marketing campaigns have been productively utilized in numerous advanced countries such as the United States, France, Turkey and the UK (Tuclea and Nistoreanu, 2011). Thus, we conjecture that developing countries also have the potential to increase tourist arrivals by employing film-induced tourism campaigns to improve their economic growth.

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Appendix 1

Table A1: Countries included in the analysis

Afghanistan	Hong Kong SAR,	Norway
Albania	Hungary	Oman
Algeria	Iceland	Pakistan
Armenia	India	Poland
Austria	Indonesia	Portugal
Azerbaijan	Iran, Islamic Rep.	Qatar
Bangladesh	Iraq	Romania
Belarus	Ireland	Russian Federation
Belgium	Israel	Saudi Arabia
Benin	Italy	Serbia
Bosnia and Herzegovina	Japan	Seychelles
Bulgaria	Jordan	Slovak Republic
Chad	Kazakhstan	Slovenia
Canada	Kuwait	Spain
China	Kyrgyz Republic	Sri Lanka
Colombia	Latvia	Sudan
Congo, Dem. Rep.	Lebanon	Sweden
Croatia	Liberia	Switzerland
Cuba	Libya	Syrian Arab Republic
Cyprus	Lithuania	Tajikistan
Czech Republic	Luxembourg	Tanzania
Denmark	Macedonia, FYR	Thailand

Dominican Republic	Maldives	Tunisia
Egypt	Malta	Turkey
Equatorial Guinea	Mauritania	Turkmenistan
Estonia	Moldova	Uganda
Finland	Mongolia	United Arab Emirates
France	Montenegro	United Kingdom
Georgia	Morocco	United States
Germany	Netherlands	Uzbekistan
Greece	Nigeria	Vietnam