

**Online Appendix for**

**Does the Internet Defy the Law of Gravity?**

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**Online Appendix Table O.1: Exploring Sample Bias and Sensitivity Analysis for Overall Effect**

	(1)	(2)	(3)	(4)	(5)	(6)
	Main Model (Table 3 Column 4)	Country-level Logit on All countries	OLS (only positive values)	Not Including Pornography Websites	No Canada	No Canada Or Mexico
Ln(distance)	-1.785 (0.331)**	0.159 (0.754)	-0.743 (0.158)**	-1.166 (0.327)**	-2.386 (0.537)**	-2.718 (0.610)**
Ln(gdp)	0.902 (0.213)**	0.589 (0.278)*	0.387 (0.138)**	1.208 (0.225)**	0.967 (0.228)**	0.949 (0.227)**
Ln(# hosts)	0.338 (0.201)+	0.467 (0.206)*	-0.112 (0.134)	0.368 (0.212)+	0.367 (0.214)+	0.425 (0.220)+
English	2.242 (0.469)**	-0.259 (0.919)	1.249 (0.264)**	2.986 (0.462)**	2.592 (0.534)**	2.563 (0.529)**
Ln(gdp per capita)	1.798 (0.406)**	0.599 (0.484)	0.350 (0.255)	2.300 (0.439)**	1.851 (0.431)**	1.667 (0.452)**
Observations	1150	106	240	1104	1125	1100
LL	-965.62	-29.14	N/A	-838.65	-894.23	-880.81
R <sup>2</sup>	N/A	N/A	0.38	N/A	N/A	N/A

Standard errors in parentheses

Columns (2), (3), and (4) include category fixed effects

+ significant at 10% \* significant at 5%; \*\* significant at 1%

**Online Appendix Table O.2: Distance Matters Even with Many Country-Level Controls and only No-Purchase Websites**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Political Stability	Rule of Law	Immigrants	# Travelers	# Users rather than # Hosts	Use Latin Alphabet rather than English	Interact English and # Hosts	All variables together
Ln(distance)	-1.136 (0.362)**	-1.060 (0.365)**	-1.010 (0.443)*	-1.273 (0.492)**	-1.205 (0.366)**	-1.518 (0.420)**	-1.181 (0.365)**	-1.791 (0.560)**
Ln(gdp)	1.294 (0.257)**	1.293 (0.254)**	1.269 (0.311)**	1.412 (0.285)**	1.116 (0.384)**	1.277 (0.271)**	1.384 (0.254)**	1.192 (0.466)*
English	3.137 (0.508)**	3.353 (0.553)**	3.092 (0.508)**	3.207 (0.561)**	3.138 (0.506)**		0.365 (0.245)	11.877 (4.297)**
Ln(# hosts)	0.325 (0.236)	0.329 (0.234)	0.282 (0.236)	0.327 (0.246)		0.486 (0.251)+	8.211 (3.998)*	0.450 (0.287)
Ln(gdp per capita)	2.769 (0.641)**	2.970 (0.730)**	2.415 (0.512)**	2.355 (0.487)**	2.410 (0.445)**	2.207 (0.529)**	2.457 (0.501)**	3.250 (0.759)**
Political stability	-0.541 (0.527)							-0.523 (0.781)
Rule of law		-0.564 (0.489)						-0.270 (0.701)
Ln(# immigrants)			0.123 (0.277)					0.037 (0.335)
Ln(# travelers)				-0.118 (0.262)				-0.289 (0.324)
Ln(# users)					0.508 (0.379)			0.347 (0.445)
Latin alphabet						0.035 (0.534)		-1.034 (0.558)+
English*ln(# hosts)							-0.386 (0.300)	-0.605 (0.315)+
Observations	828	828	828	828	828	828	828	828
LL	-656.28	-656.14	-656.70	-656.70	-656.68	-674.53	-655.98	-651.91

Standard errors in parentheses

+ significant at 10% \* significant at 5%; \*\* significant at 1%

All regressions include category fixed effects

**Online Appendix Table O.3: Robustness of the Definition of Taste Dependence to Different Category Divisions**

	Various Taste Dependence Definitions				Various Not Taste Dependent Definitions				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Taste Dependent <sup>#</sup> (Table 4 Column 1)	Taste Dependent <sup>#</sup> without Pornography	Pornography Only	Entertainment Websites Only	Not Taste Dependent <sup>##</sup> (Table 4 Column 2)	Not Taste Dependent <sup>##</sup> plus Email and Non-profit/ Education	Not Taste Dependent <sup>##</sup> without General Info. and Internet	Communication Websites Only	Information Websites only
ln(distance)	-3.248 (0.757)**	-1.666 (0.945)+	-3.494 (1.003)**	-2.618 (0.569)**	-0.979 (0.628)	-0.768 (0.471)	-0.961 (0.910)	-0.313 (1.192)	-0.703 (0.640)
ln(gdp)	0.131 (0.439)	-0.605 (0.811)	0.163 (0.563)	0.267 (0.335)	0.375 (0.440)	0.352 (0.353)	0.182 (0.851)	1.474 (1.555)	1.203 (0.438)**
ln(# hosts)	-0.313 (1.066)	5.164 (1.452)**	-2.163 (1.449)	0.529 (0.318)+	2.738 (0.916)**	2.635 (0.703)**	2.843 (1.406)*	2.475 (1.721)	0.214 (0.383)
English	0.402 (0.411)	1.258 (0.809)	0.296 (0.521)	0.427 (0.798)	0.804 (0.432)+	0.817 (0.346)*	1.589 (0.823)+	3.603 (2.336)	4.768 (0.922)**
ln(gdp per capita)	0.518 (0.795)	0.459 (1.471)	0.475 (1.010)	0.603 (0.618)	2.177 (0.870)*	2.215 (0.703)**	5.102 (2.103)*	0.808 (3.003)	2.669 (0.892)**
Observations	184	138	46	322	230	322	138	138	322
LL	-218.71	-106.34	-96.19	-377.29	-214.65	-290.61	-83.67	-39.53	-226.10

Standard errors in parentheses

All regressions include category fixed effects

+ significant at 10% \* significant at 5%; \*\* significant at 1%

<sup>#</sup>Taste-dependent categories: Gambling, Games, Music, and Pornography

<sup>##</sup>Not Taste-dependent categories: Financial Information, General Information, Internet, Software, and Technology Information.

**Online Appendix Table O.4: Robustness of the Definition of Taste Dependence: More Objective Proxies**

	Various Taste Dependence Definitions		Various Not Taste Dependent Definitions	
	(1)	(2)	(3)	(4)
	Preference for variety above median <sup>#</sup>	Market concentration below median <sup>##</sup>	Preference for variety below median <sup>#</sup>	Market concentration above median <sup>##</sup>
ln(distance)	-1.816 (0.380)**	-2.073 (0.464)**	-0.803 (0.578)	-1.241 (0.473)**
ln(gdp)	0.878 (0.238)**	0.467 (0.273)+	0.816 (0.600)	1.525 (0.340)**
English	2.149 (0.532)**	1.551 (0.650)*	2.639 (1.007)**	2.686 (0.668)**
ln(gdp per capita)	1.796 (0.452)**	1.396 (0.521)**	1.461 (1.235)	2.426 (0.657)**
ln(# hosts)	0.285 (0.223)	0.359 (0.258)	1.674 (0.652)*	0.428 (0.325)
Observations	598	598	552	552
LL	-719.52	-576.08	-221.57	-379.79

Standard errors in parentheses

All regressions include category fixed effects

+ significant at 10% \* significant at 5%; \*\* significant at 1%

<sup>#</sup>Preference for variety is defined by the mean number of different hosts visited by each household

<sup>##</sup>Market concentration is defined by both HHI and C4 (they give the same division at the median).

**Online Appendix Table O.5: Sensitivity Analysis—Robustness of Significance with interaction between distance and GDP per capita.**

	Taste Dependent					Not Taste Dependent				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Unweighted	OLS	With Internal Distances (Includes US)	No Canada	No Canada or Mexico	Unweighted	OLS	With Internal Distances (Includes US)	No Canada	No Canada or Mexico
ln(distance)	-29.957 (9.717)**	-18.876 (5.112)**	-30.988 (10.854)**	-37.363 (13.455)**	-39.152 (13.732)**	-11.481 (11.606)	1.767 (3.360)	-15.729 (12.504)	-26.205 (15.724)+	-35.564 (15.723)*
ln(distance)* ln(GDP per capita)	2.745 (0.993)**	1.703 (0.525)**	2.821 (1.136)*	3.580 (1.446)*	3.734 (1.466)*	1.056 (1.166)	-0.248 (0.345)	1.488 (1.280)	2.696 (1.650)	3.560 (1.638)*
ln(GDP per capita)	-23.846 (8.833)**	-14.899 (4.699)**	-24.779 (10.157)*	-31.265 (12.860)*	-32.778 (13.071)*	-7.151 (10.294)	2.809 (3.089)	-11.172 (11.365)	-21.483 (14.514)	-29.842 (14.468)*
ln(GDP)	0.695 (0.460)	0.500 (0.228)*	0.820 (0.457)+	0.761 (0.486)	0.793 (0.489)	0.546 (0.481)	0.149 (0.150)	0.629 (0.472)	0.743 (0.517)	0.787 (0.503)
ln(# hosts)	0.137 (0.395)	0.054 (0.197)	0.144 (0.386)	0.077 (0.421)	0.115 (0.425)	0.707 (0.444)	0.216 (0.129)+	0.665 (0.430)	0.510 (0.481)	0.672 (0.478)
English	-0.100 (1.018)	-0.471 (0.524)	0.090 (0.964)	-0.377 (1.143)	-0.455 (1.149)	2.925 (0.941)**	1.164 (0.344)**	2.968 (0.870)**	2.519 (1.046)*	2.387 (1.009)*
USA Dummy			3.263 (3.115)					3.450 (2.682)		
Observations	184	184	188	180	176	230	230	235	225	220
LL	-214.98	N/A	-228.31	-201.78	-198.62	-214.23	N/A	-227.23	-200.50	-197.03
R <sup>2</sup>	N/A	0.27	N/A	N/A	N/A	N/A	0.25	N/A	N/A	N/A

Standard errors in parentheses

All regressions include category fixed effects

+ significant at 10% \* significant at 5%; \*\* significant at 1%

**Online Appendix Table O.6: Distance Matters In Taste Dependent Categories Even with Many Country-Level Controls and with an interaction between distance and GDP per capita.**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Political Stability	Rule of Law	Immigrants	# Travelers	# Users rather than # Hosts	Use Latin alphabet rather than English	Interact English and # Hosts	All variables together
ln(distance)	-34.560 (9.521)**	-31.757 (10.779)**	-39.562 (11.509)**	-26.669 (10.211)**	-31.059 (9.444)**	-28.523 (9.819)**	-35.414 (10.957)**	-61.294 (13.579)**
ln(distance)* ln(GDP per capita)	3.191 (0.970)**	2.979 (1.088)**	3.636 (1.144)**	2.460 (1.028)*	2.860 (0.967)**	2.627 (0.997)**	3.300 (1.118)**	5.772 (1.326)**
ln(GDP per capita)	-25.947 (8.498)**	-26.315 (9.869)**	-32.312 (10.354)**	-21.251 (9.156)*	-24.391 (8.684)**	-22.859 (8.860)*	-28.932 (10.009)**	-51.921 (12.308)**
ln(GDP)	0.441 (0.453)	0.548 (0.544)	1.370 (0.628)*	0.485 (0.511)	1.155 (0.608)+	0.688 (0.457)	0.698 (0.454)	1.852 (0.786)*
ln(# hosts)	0.254 (0.382)	0.370 (0.467)	0.163 (0.387)	0.031 (0.411)		0.120 (0.393)	0.015 (0.405)	0.102 (0.435)
English	0.188 (0.978)	2.134 (1.069)*	0.142 (1.016)	-0.532 (1.107)	0.044 (1.024)		-5.864 (5.479)	-6.577 (5.277)
Political stability	-2.361 (0.857)**							-4.273 (1.145)**
Rule of law		0.596 (1.032)						3.651 (1.302)**
ln(# immigrants)			-0.819 (0.529)					-0.824 (0.528)
ln(# travelers)				0.370 (0.390)				-0.077 (0.436)
ln(# users)					-0.368 (0.616)			-0.513 (0.667)
Latin alphabet						0.713 (0.894)		0.320 (0.883)
English*ln(# hosts)							0.466 (0.435)	0.457 (0.406)
Observations	184	184	184	184	184	184	184	184
LL	-211.23	-205.07	-213.79	-214.53	-214.86	-214.67	-214.41	-204.21

Standard errors in parentheses

All regressions include category fixed effects

+ significant at 10% \* significant at 5%; \*\* significant at 1%

**Online Appendix Table O.7: Distance Matters Much Less in Non Taste Dependence Categories Even with Many Country-Level Controls and with an interaction between distance and GDP per capita.**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Political Stability	Rule of Law	Immigrants	# Travelers	# Users rather than # Hosts	Use Latin Alphabet rather than English	Interact English and # Hosts	All variables together
ln(distance)	-11.445 (11.617)	-24.091 (11.650)*	-9.538 (13.007)	-3.084 (12.259)	-17.176 (11.148)	-6.041 (12.411)	-11.559 (12.358)	-30.107 (15.338)+
ln(distance)* ln(GDP per capita)	1.053 (1.166)	2.282 (1.166)+	0.877 (1.285)	0.310 (1.208)	1.613 (1.120)	0.452 (1.237)	1.064 (1.243)	2.871 (1.490)+
ln(GDP per capita)	-7.186 (10.306)	-20.625 (10.606)+	-5.465 (11.490)	-0.580 (10.688)	-12.234 (10.016)	-1.818 (10.925)	-7.223 (11.022)	-26.069 (13.660)+
ln(GDP)	0.557 (0.495)	0.785 (0.515)	0.403 (0.649)	0.015 (0.594)	-0.345 (0.674)	0.321 (0.487)	0.546 (0.481)	0.191 (0.918)
ln(# hosts)	0.701 (0.449)	0.597 (0.462)	0.713 (0.447)	0.612 (0.463)		0.975 (0.457)*	0.705 (0.470)	-0.012 (0.507)
English	2.920 (0.942)**	2.138 (0.965)*	2.879 (0.950)**	2.067 (1.061)+	2.993 (0.916)**		2.806 (6.507)	-1.995 (6.069)
Political stability	0.084 (0.912)							-1.299 (1.223)
Rule of law		2.138 (1.008)*						3.186 (1.393)*
ln(# immigrants)			0.175 (0.532)					-0.086 (0.574)
ln(# travelers)				0.771 (0.498)				0.315 (0.611)
ln(# users)					1.673 (0.700)*			0.996 (0.757)
Latin alphabet						-0.697 (0.912)		-2.040 (0.951)*
English*ln(# hosts)							0.009 (0.496)	0.329 (0.459)
Observations	230	230	230	230	230	230	230	230
LL	-214.23	-210.12	-214.18	-212.94	-212.54	-218.73	-214.23	-206.55

Standard errors in parentheses

All regressions include category fixed effects

+ significant at 10% \* significant at 5%; \*\* significant at 1%



**Online Appendix Table O.8: Modeling the Censoring of the Data and with an interaction between distance and GDP per capita.**

	Hallak's Random Censoring Model				Heckman Selection Model			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	All data <sup>#</sup>	No Purchase Only <sup>#</sup>	Taste Dependent Only <sup>#</sup>	Not Taste Dependent Only <sup>#</sup>	All data	No Purchase Only	Taste Dependent Only	Not Taste Dependent Only
	<b>Visits Equation</b>				<b>Visits Equation</b>			
Ln(distance)	-0.645 (0.197)**	-0.681 (0.265)*	-19.268 (3.739)**	-0.984 (6.073)	-0.885 (0.193)**	-0.921 (0.256)**	-16.906 (5.529)**	-1.751 (6.110)
ln(distance)* ln(GDP per capita)			1.754 (0.369)**	0.089 (0.592)			1.556 (0.535)**	0.159 (0.595)
Ln(GDP per capita)	0.447 (0.324)	0.615 (0.408)	-14.980 (3.228)**	-1.808 (5.294)	0.396 (0.224)+	0.448 (0.356)	-13.422 (4.681)**	-2.539 (5.266)
Ln(GDP)	0.157 (0.151)	0.375 (0.194)+	1.082 (0.273)**	-0.608 (0.362)+	0.458 (0.130)**	0.745 (0.199)**	0.718 (0.384)+	-0.640 (0.382)+
English	1.016 (0.299)**	1.314 (0.395)**	0.653 (0.444)	0.021 (0.606)	1.397 (0.233)**	1.834 (0.343)**	1.184 (0.593)*	-0.150 (0.670)
Ln(# hosts)	0.200 (0.142)	-0.210 (0.207)	-0.379 (0.187)*	0.796 (0.324)*	-0.098 (0.105)	-0.125 (0.142)	-0.471 (0.666)	0.791 (0.324)*
Ln(# travels)	0.014 (0.083)	-0.236 (0.142)+	-0.196 (0.145)	0.608 (0.336)+	-0.080 (0.100)	-0.394 (0.151)**	-0.327 (0.215)	0.518 (0.356)
	<b>Fixed Cost (Censoring) equation</b>				<b>Selection equation</b>			
Ln(distance)	0.042 (0.248)	0.481 (0.355)	-8.988 (3.149)**	-4.750 (3.701)	-0.684 (0.135)**	-0.715 (0.184)**	12.745 (32.204)	20.857 (53.180)
ln(distance)* ln(GDP per capita)			0.836 (0.321)**	0.444 (0.378)			-1.187 (3.032)	-1.905 (4.949)
Ln(GDP per capita)	-0.309 (0.346)	-0.643 (0.461)	-7.482 (2.899)**	-3.128 (3.313)	0.573 (0.101)**	0.762 (0.137)**	-0.428 (1.126)	12.068 (38.146)
Ln(GDP)	-0.127 (0.156)	-0.256 (0.210)	0.114 (0.126)	0.229 (0.142)	0.281 (0.052)**	0.421 (0.069)**	-1.006 (2.251)	-1.275 (1.906)
English	0.030 (0.371)	-0.546 (0.488)	-0.659 (0.321)*	1.169 (0.329)**	0.670 (0.146)**	1.180 (0.195)**	0.118 (0.679)	-5.752 (10.552)
Ln(# hosts)	-0.028 (0.151)	0.210 (0.178)	0.114 (0.109)	0.169 (0.126)	0.108 (0.048)*	0.112 (0.062)+	-0.003 (0.289)	-0.313 (2.025)
Latin Alphabet	0.182 (0.191)	0.117 (0.353)	0.301 (0.264)	-0.559 (0.295)+	-0.267 (0.127)*	-0.473 (0.172)**	10.431 (26.386)	2.900 (5.367)
Observations	1150	828	184	230	1150	828	184	230
LL	-781.42	-543.54	-265.48	-203.93	-1193.04	-701.09	-168.00	-182.76

Standard errors in parentheses. All regressions include category fixed effects. + significant at 10% \* significant at 5%; \*\* significant at 1%

<sup>#</sup>The results for Hallak's model are unweighted. The weighted likelihood would not converge.