



# **Cultural proximity, incomplete information and pricing. The case of Lonely Planet tourist guidebooks**

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# Outline

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- Motivation and research question
- A stylized theoretical framework
- The data
- Empirical analysis



# Motivation

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- Tourism markets are widely characterized by **incomplete information**
- To a significant extent, holidays are **search goods**, for which tourists can acquire information before purchase (or consumption)
- **Tourism guidebooks** are a tourism-related good
- Although tourists can now have access to variety of sources of information, **travel guidebooks** are still very important
  - Tsang et al. (2011)'s survey ranks travel guidebooks as the primary source for a sample of Hong Kong outbound travelers
- **Past literature** on travel guidebooks has focused on motivation for travel guidebooks use, the personal characteristics of users', the timing of use (pre-, during, post-trip)
  - Nishimura et al. (2007); Wong and Liu (2011)



# Research Question

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- The **aim of this paper** is exploring the differences in pricing of tourism guidebooks across different markets
  - determinants of prices for a sample of Lonely Planet travel guidebooks
- Our aim is to identify if there is a **cultural bias** in pricing tourism guidebooks
- We use a unique **dataset** of prices of Lonely Planet Tourism Guides, which are sold in 3 different Amazon.com local markets
- We investigate if and why a **third type price-discrimination** (i.e., selling identical products at different prices to different categories of customers) exists



## Research Question (2)

- Attention is devoted to the **impact of culture on pricing**  
→ does culture play a role in explaining the difference in pricing the same guidebook (for a specific tourism destination) sold in different markets?
- Price discrimination may be explained by the **cultural proximity** between the local market and the tourism destination described in the tourism guidebook, as measured by the linguistic similarity between the two countries
  - cultural proximity may be **negatively** associated to the degree of incomplete information about the destination market, and then to the willingness to pay for information (and thus, price)
  - cultural proximity may be **positively** associated to the capacity of absorbing the information about the destination market, and then to the willingness to pay for information (and thus, price)



# Theory

- Consider a **monopolist selling a travel guidebook** in market  $k$  for destination  $j$  (subscripts omitted from now on)
- Costs of production are zero
- On the demand side, the **utility** of tourist  $i$  in market  $k$  traveling to destination  $j$  **without a guidebook** is:

$$\theta_i - p$$

where  $\theta_i \sim U(0;1)$  is the hedonic evaluation of the holiday and  $p$  is the holiday price

- The **utility** of tourist  $i$  traveling to  $j$  **with a guidebook** is:

$$\beta\theta_i - p - p_G$$

with  $\beta \geq 1$  capturing the value of information (from guidebooks) and  $p_G$  being the price of the guidebook



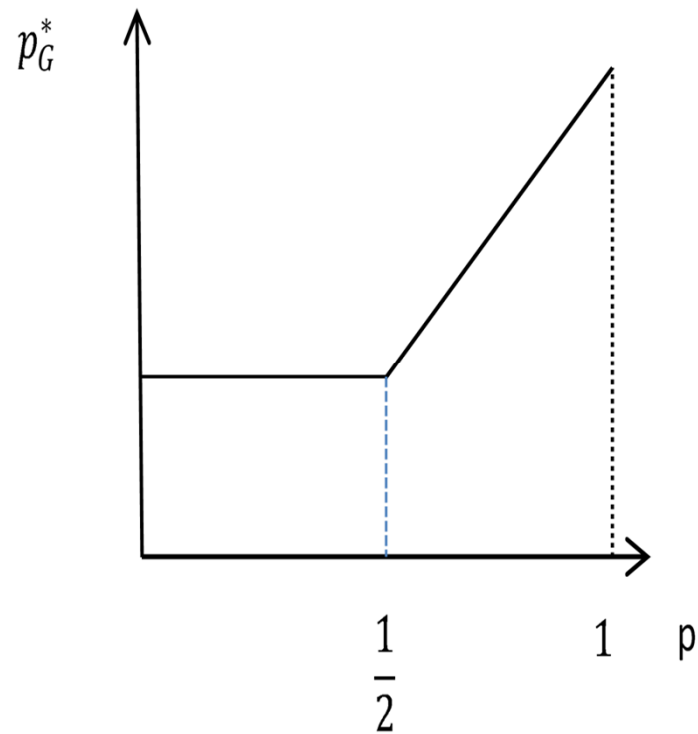
## Theory (2)

- We expect  $\beta$  to differ across destination-origin pairs due, in particular, to cultural proximity/distance
- The **decision process** of tourists is sequential:
  1. the tourist decides if travelling or not to the destination
  2. the tourist decides if buying the guidebook, or not
- We assume that the tourist is **myopic**
- **Demand for destination  $j$**  is  $1 - p$
- **Demand for travel guidebooks** is  $\min(1 - \frac{p_G}{\beta - 1}; 1 - p)$
- **Equilibrium price** for the guidebook  $p_G^*$  is

$$\left\{ \begin{array}{ll} \frac{\beta - 1}{2} & \text{for } p \leq \frac{1}{2} \\ p(\beta - 1) & \text{for } p > \frac{1}{2} \end{array} \right.$$

# Theory (3)

Figure 1







# Empirical hypothesis

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**H01a:** Cultural proximity decreases tourist guide price

- cultural proximity negatively affects  $\beta$

**H01b:** Cultural proximity increases tourist guide price

- cultural proximity positively affects  $\beta$

**H02:** Cultural proximity in two markets towards the same destination explains the difference of price for the corresponding guidebook in the two markets



# Dataset

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- **Full population** of Lonely Planet guidebooks on sale (Spring 2016) was scraped for UK, Australia and India markets from Amazon.com
- Positive prices → **paperback (physical) books**
- “Zero” prices → **electronic (digital) books**, either free or sold under “Kindle unlimited” subscription: prices are **censored from below** cause electronic books always have lower price than paperback books
- There were several different prices for the same book by different local companies or shops – we use an **average country price** per book



## Dataset (2)

country (market)	number of guide books	Percent	Cum.
AUS (Australia)	865	38.75	38.75
IND (India)	598	26.79	65.55
UK (United Kingdom)	769	34.45	100.00
Total	2,232	100	



# Dataset (3)

destination (in book)	number of guide books	percent	cum.				
Albania	3	0.13	0.13	Jamaica	9	0.4	42.25
Australia	40	1.79	1.93	Japan	153	6.85	49.1
Austria	25	1.12	3.05	Jordan	6	0.27	49.37
Bahamas	8	0.36	3.41	Kazakhstan	2	0.09	49.46
Bangladesh	8	0.36	3.76	Latvia	5	0.22	49.69
Belarus	2	0.09	3.85	Lithuania	2	0.09	49.78
Belize	2	0.09	3.94	Madagascar	2	0.09	49.87
Bhutan	1	0.04	3.99	Malaysia	25	1.12	50.99
Brazil	28	1.25	5.24	Mauritius	4	0.18	51.16
Bulgaria	6	0.27	5.51	Mexico	6	0.27	51.43
Cambodia	11	0.49	6	Morocco	10	0.45	51.88
Canada	35	1.57	7.57	Nepal	11	0.49	52.37
Chile	38	1.7	9.27	Netherlands	31	1.39	53.76
Colombia	21	0.94	10.22	New Zealand	31	1.39	55.15
Costa Rica	11	0.49	10.71	Nicaragua	9	0.4	55.56
Croatia	18	0.81	11.51	Norway	13	0.58	56.14
Cyprus	5	0.22	11.74	Panama	6	0.27	56.41
Czech Republic	26	1.16	12.9	Papua New Guinea	3	0.13	56.54
Denmark	16	0.72	13.62	Peru	21	0.94	57.48
Ecuador	16	0.72	14.34	Philippines	14	0.63	58.11
Egypt	12	0.54	14.87	Poland	18	0.81	58.92
El Salvador	2	0.09	14.96	Portugal	45	2.02	60.93
Estonia	4	0.18	15.14	Romania	3	0.13	61.07
Fiji	3	0.13	15.28	Russian Federation	34	1.52	62.59
Finland	10	0.45	15.73	Slovakia	6	0.27	62.86
France	100	4.48	20.21	Slovenia	2	0.09	62.95
Germany	70	3.14	23.34	South Africa	41	1.84	64.78
Greece	33	1.48	24.82	Spain	97	4.35	69.13
Guatemala	7	0.31	25.13	Sri Lanka	21	0.94	70.07
Honduras	5	0.22	25.36	Sweden	26	1.16	71.24
Hungary	20	0.9	26.25	Switzerland	20	0.9	72.13
Iceland	15	0.67	26.93	Thailand	115	5.15	77.28
India	63	2.82	29.75	Turkey	50	2.24	79.53
Indonesia	23	1.03	30.78	Ukraine	3	0.13	79.66
Ireland	7	0.31	31.09	United Kingdom	76	3.41	83.06
Israel	12	0.54	31.63	United States of Americ	358	16.04	99.1
Italy	228	10.22	41.85	Viet Nam	20	0.9	100
				<b>Total</b>	<b>2,232</b>	<b>100</b>	



# Zero-inflation in the data

UK				Total
Nonzero	obs	=	251	
Zero	obs	=	518	
				769
AUS				
Nonzero	obs	=	857	
Zero	obs	=	8	
				865
IND				
Nonzero	obs	=	117	
Zero	obs	=	479	
				596
All				
Nonzero	obs	=	1225	
Zero	obs	=	1005	
				2230

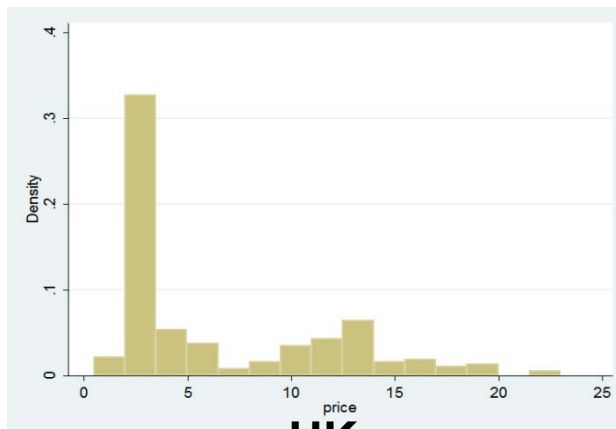
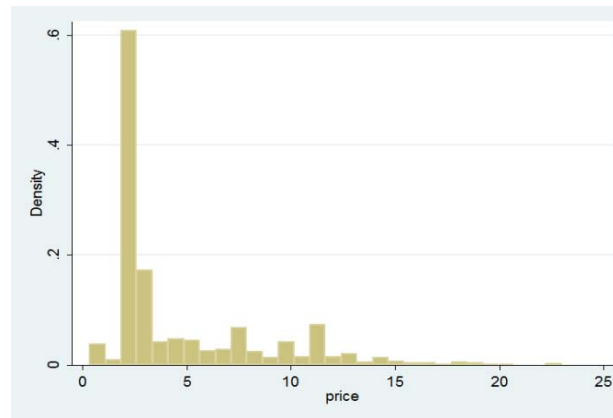
- UK market 2/3 e-books
- AUS market – almost entirely paperback books
- IND market  $\frac{3}{4}$  e-books



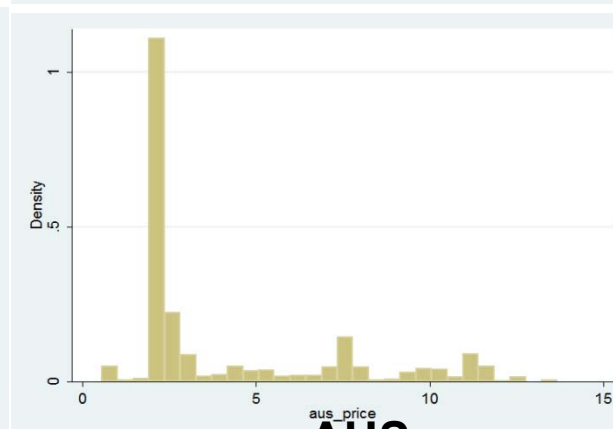
# Zero-inflation in the data (2)

- Assumption: zero-inflation is demand driven (since “zero” prices are e-books prices when the demand for paperback books is limited or absent); guidebook prices are Poisson distributed

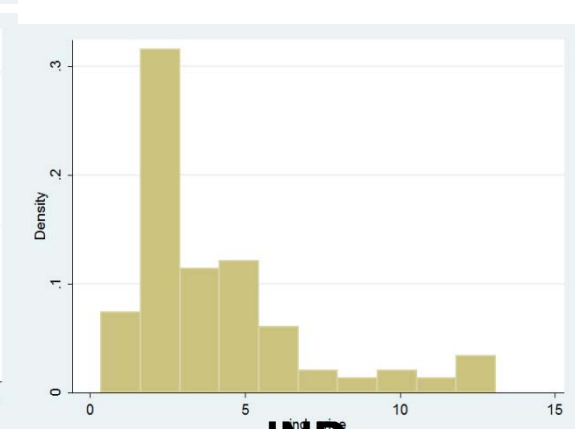
**ALL**



**UK**



**AUS**



**IND**



# The empirical model

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- **Three models**
  1. Ordinary OLS (for basis of comparison)
  2. OLS with all prices different from zero (without zeros)
  3. Zero-inflated Poisson regression
- **Dependent variable:** guidebook price (converted in GBP)
- **Main explanatory variable:** cultural proximity, proxied by the index of linguistic proximity (CEPII data)
- **Controls:** tourism flows, relative prices, weather (annual temperatures, rain and wind speed) as this captures both geo distance info (places that are close have similar weather) and amenity aspect (higher difference is likely to attract as more exotic experience)



# Price and cultural distance

	OLS-full sample		OLS - without zeros		Zero Inflated Model	
dep. var.	price					
cult dist	1.886	6.99	0.743	2.02	0.188	2.24
outbount_t	-1.03E-07	-2.55	4.54E-08	0.66	1.24E-08	0.93
temp_diff	0.465	4.55	0.613	3.70	0.142	3.45
rain_diff	0.711	8.50	-0.139	-1.34	-0.027	-1.01
wind_diff	-0.040	-3.94	0.148	5.80	0.018	4.48
_cons	0.787	4.01	3.937	12.32	1.349	15.84
inflated by						
outbount_t					1.97E-07	6.24
_cons					-0.438	-8.23
N	2230		1225		2230	
R-squared	0.0655		0.0753			
Prob > chi2					0.0000	

- The higher the cultural proximity the higher the price
- Higher demand, higher number of “cheaper” e-books





# Controlling for relative prices

	OLS-full sample		OLS - without zeros		Zero Inflated Model	
dep. var.	price					
cult_dist	0.665	2.31	0.741	1.95	0.171	2.00
outbount_t	-1.39E-07	-3.52	4.54E-08	0.66	1.27E-08	0.96
temp_diff	-0.099	-0.87	0.612	3.47	0.123	2.74
rain_diff	0.357	4.04	-0.140	-1.29	-0.036	-1.30
wind_diff	-0.030	-3.00	0.148	5.79	0.018	4.56
ppp_diff	-0.353	-10.58	-0.001	-0.02	-0.038	-0.66
_cons	2.998	10.57	3.941	10.12	1.422	12.94
inflated by						
outbount_t					2.01E-07	6.05
_cons					-0.464	-5.91
N	2230		1225			
R-squared	0.1102		0.0753			
Prob > chi2					0.0000	

- Cultural proximity holds significance
- Relative prices matters for the zeroes: if tourists travel to a poorer place they are less motivated to spend on info about it



# Controlling for country differences

	OLS-full sample		OLS - without zeros		Zero Inflated Model	
dep. var.	price					
cult_dist	-0.269	-0.88	0.635	1.60	0.140	1.66
outbount_t	-5.34E-08	-1.33	-8.62E-08	-1.18	-1.41E-08	-0.95
temp_diff	0.720	5.20	-0.302	-1.23	-0.038	-0.72
rain_diff	-0.167	-1.70	0.098	0.81	0.016	0.54
wind_diff	-0.006	-0.56	0.118	4.55	0.014	3.30
d_au	2.820	9.84	-2.526	-4.89	-0.477	-4.40
d_ind	-0.830	-2.86	-2.528	-4.41	-0.669	-3.82
_cons	1.477	4.40	6.504	10.80	1.856	14.72
inflated by						
outbount_t					2.03E-07	6.21
_cons					-0.465	-7.56
N	2230		1225			
R-squared	0.1635		0.0942			
Prob > chi2					0.0000	

- Country dummies take away a significant part of the effects, except weather → as expected, country dummies capture the whole culture effect



# Explaining differences of the same product on two markets

- AUS and UK markets
- All controls had to be dropped due to collinearity
- Clear effect from cultural proximity

Number of obs	=	511	
Nonzero obs	=	49	
Zero obs	=	462	
Zero-Inflated Model			
dep. var.	indep. var.	coef.	z-value
diff_price			
	diff_cultdist	0.274	3.92
	diff_demand	0.010	0.38
	_cons	-2.748	-11.56
inflated by			
	diff_demand	0.173	2.23
	_cons	-6.654	-1.79
Wald chi2 =		18.56	
Log pseud =		-163.797	
Prob > chi =		0.0001	



# Conclusions

- **Cultural proximity has a positive effect on price**
  - the higher the cultural proximity (between origin and destination), the higher the capacity of absorbing the information from the guidebook, and thus the willingness to pay (and the price) for the guidebook
  - tourists want to get informed about (= willing to spend more) for countries similar to theirs
  - tourists want to learn more for places they already know because knowledge is created by linking new things to old (already known) things
- **Culture could play a role in explaining the differences in pricing the same service\* differently across space** (i.e. revisiting the Balassa-Samuelson hypothesis that it is a question of wages) by proposing that it is a demand driven effect from cultural preferences on price
  - See Tubadji and Nijkamp, IATE 2017

*\*a guidebook is a good that you don't buy, unless in relation with tourist services; and a guidebook for a destination costs the same to the producer (Lonely Planet) everywhere; different language-same destination book is treated as a different book on the market*