

A QUANTITATIVE ANALYSIS OF READING HABITS

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Research field

Aim:

- to determine which factors influence reading.

Reading:

- a professional duty (imposed exogenously)
- a leisure activity (Becker's model of time allocation (1965))



The consumer decision approach

Motivation: utility maximization

- preferences or tastes

Constraint: individual's budget

- availability of time,
- income,
- book prices,
- household cultural equipment or ease of access to libraries.



Focus variable: cultural background

Stigler and Becker (1977):

Crucial factor - person's cultural capital

- social and family environment,
- general attitudes towards cultural consumption,
- the provision of relevant physical capital for consumption,
- prior experience and other cultural products that act as alternative or complementary goods.



Data: Survey on Cultural Habits and Practices in Spain 2010-2011

- Spanish population (> 15 years)
- representative in terms of education level, economic activity, type of residence, and other factors

Table 1. Number of books read

Number of books	Frequency	Cumulative percentage
0	7,794	56.10
1	2,420	73.51
2	1,515	84.42
3	871	90.69
4	369	93.34
5 or more	925	100

Source: SCPH



Data

Category	Variables
Socio-economic variables	age, gender, education, work status, marital status, familiar responsibilities, city size and regional controls.
Cultural preferences	the interviewee's self-reported interest in different cultural devices
Cultural consumption	domestic non-domestic: an active cultural participation a passive one
Cultural capital	domestic cultural equipment => a physical home equipment proxy



Models

Problem:

The Poisson and Binomial Negative Models underestimate the actual frequency of zeros.

Solution:

Zero-Inflated models assume the existence of two types of zero values in the data:

- Always Zero group
- Not Always Zero group

Table 5. Zero inflated Negative binomial estimation

	Logit		Negative binomial eq	
	Coefficient	t stat	Coefficient	t stat
CONSTANT	2.8030***	4.830	-0.4497***	-2.626
AGE	-0.0384**	-2.074	0.0157**	2.404
AGE/100 SQUARED	0.0361**	2.074	-0.0059	-0.804
FEMALE	-0.7645***	-6.511	0.1381***	2.913
TERTIARY EDUC	-2.7491***	-8.047	0.4347***	3.930
VOCATIONAL EDUC	-1.5455***	-6.779	0.1183	1.030
SECUND EDUC	-1.4549***	-7.019	0.2291**	2.055
PRIMARY EDUC	-0.5986***	-4.262	-0.0444	-0.420
FACT(CULT EQ)	-0.4726***	-5.802	0.2110***	5.826
FACT(CULT EQ) SQUARED	0.0812***	3.709	-0.0239**	-1.972
PROVINCE CAPITAL	-0.2209	-1.459	0.1023	1.523
CITY	0.4008*	1.847	0.0843	0.816
TOWN	-0.1365	-0.632	0.1176	1.212
SMALL TOWN	0.2253	1.411	0.0517	0.707
HOURS TV WORKINGD	0.0896**	2.397	-0.0076	-0.430
HOURS TV WEEKEND	0.0588	1.467	-0.0170	-0.974
HOURS RADIO WORKINGD	-0.0259	-0.697	-0.0131	-1.007
HOURS RADIO WEEKEND	0.0445	0.984	0.0069	0.398
HOURS MUSIC WORKINGD	-0.0236	-0.712	-0.0107	-1.140
HOURS MUSIC WEEKEND	-0.0403	-0.844	0.0297**	2.352
NUMBER TIMES MUSEUMS	-0.9073***	-2.89	0.0286**	2.338
NUMBER TIMES MONUMENTS	-0.1032	-0.548	0.0089**	2.463
NUMBER TIMES EXPOSITIONS	-1.0169*	-1.818	0.0164	1.489
NUMBER TIMES TEATRE	-0.6229	-1.167	0.0135	0.835
NUMBER TIMES CONCERT CLASIC MUSIC	-0.3850	-0.569	0.0165	0.679
NUMBER TIMES CONCERT POPULAR MUSIC	-0.1164	-0.919	0.0041	0.416
NUMBER TIMES CINEMA	-0.1009	-1.509	0.0236***	3.598
VIDEO GAMING	0.0180	0.361	0.0412**	2.470
TRAD VISUAL ARTS	-0.4385**	-2.367	0.1210**	2.190
PHOTO & VIDEO	-0.5458***	-3.161	-0.0510	-1.061
MUSICAL ACTIVITIES	-0.2129	-0.889	0.1416**	2.146
PERFORMING ARTS	0.1393	0.433	0.0834	0.935
ARTS COURSE	-0.3182	-1.134	0.1902**	2.403
SELF EMPLOYED	-0.1146	-0.518		
EMPLOYEE	-0.1285	-0.754		

Table 5. Zero inflated Negative binomial estimation

	Logit		Negative binomial eq	
	Coefficient	t stat	Coefficient	t stat
UNEMPLOYED	-0.5709***	-2.935		
RETIRED	-0.5136***	-3.035		
DISABLED	-0.4100	-0.773		
STUDENT	-0.7409**	-2.305		
INDEPENDENT	0.2152	1.019		
MARRIED	0.2230	1.139		
HOUSE SIZE	0.1145***	2.923		
NUMBER CHILDREN	-0.0458	-0.494		
INTEREST MUSEUM	-0.0961***	-4.301		
INTEREST ARCHEOLOGICAL SITES	-0.0564**	-2.542		
INTEREST CINEMA	-0.0020	-0.091		
INTEREST THEATER	-0.1050***	-4.939		
INTEREST CLASSICAL MUSIC	-0.0705***	-3.723		
INTEREST POPULAR MUSIC	-0.0195	-1.008		



Probability of being reader

- Mid-age
- Home cultural equipment (following a decreasing trend)
- Women
- People living in a city over 100.000 inhabitants
- Education
- Low opportunity cost of time
- High the self-declared interest (highbrow culture)

Income



Education



Cultural
equipment

PRODUCT SELECTION AS PRICE DISCRIMINATION IN THE MARKET FOR BOOKS

Sofronis K. Clerides (1999)



Durable good pricing

Stokey (1979): intertemporal price discrimination is no more profitable than a single price policy

Table 2: Price regressions

	Hardcover Price		Paperback price			
			All titles		Sequential	
Intercept	47.30	(35.20)	20.41	(19.11)	-9.523	(20.59)
Prev. pubs	-.028	(.078)	.031	(.030)	.016	(.032)
Prev. pubs ²	.42e-3	(.46e-3)	.346e-3	(.188e-3)	.283e-3	(.205e-3)
New edition	.348	(1.783)	-.017	(.585)	.224	(1.434)
Authors	2.902*	(.830)	.279	(.325)	.340	(.326)
Simultaneous	1.222	(1.025)	.559	(.436)		
Hardcover only	2.252*	(.625)				
Paperback sold	-4.472*	(1.786)				
Pages	3.755	(2.846)	5.154*	(1.739)	6.501*	(2.491)
Pages ²	-.191	(.170)	-.474*	(.118)	-.497*	(.163)
Weight	19.33*	(5.94)	2.025	(4.796)	-3.197	(6.924)
Weight ²	-1.959*	(.823)	.380	(.917)	1.099	(1.257)
Weight/page	-7.360*	(3.551)	-3.039	(2.527)	-.640	(3.785)
(Weight/page) ²	.653*	(.290)	.871*	(.276)	.848*	(.389)
Pulp price	14.02	(8.39)	-2.533	(4.127)	-.632	(3.935)
UP price	-1.316	(1.970)	-1.265	(4.221)	3.960	(4.419)
Hardcover sales					-.193*	(.065)
Publication lag			.257*	(.105)	.232	(.315)
Publication lag ²					.0017	(.037)
Adj. R^2		.680		.772		.803
Observations		842		435		328

Time and category dummies also included.

* denotes significance at the 5% level.



Two-type, two-period model

$$\begin{aligned} u_{ij} &= \zeta_i + \psi_i H_j - \rho_i T_j - \alpha_i P_j + \varepsilon_{ij} \\ &= \nu_{ij} + \varepsilon_{ij} \quad j = 1, 2; \end{aligned}$$

- Valuation for basic version
- H – high quality
- T – dummy for time period
- P – price

$$\nu_{ij} = \begin{cases} \nu_j^h & \text{with probability } \lambda \\ \nu_j^l & \text{with probability } 1 - \lambda \end{cases}$$



Probability of purchasing

$$s_j^\tau = \frac{e^{\nu_j^\tau}}{1 + e^{\nu_1^\tau} + e^{\nu_2^\tau}}, \quad j = 1, 2; \quad \tau = h, l.$$

$$s_j = \lambda s_j^h + (1 - \lambda) s_j^l, \quad j = 1, 2.$$

$$\Pi(T_2) = p_1 s_1(T_2) + [1 - T_2(1 - \delta)] p_2 s_2(T_2)$$



Demand model

$$u_{ij} = \ln(U_{ij}) = x' \beta_{x,i} + \beta_{h,i} H_j - \beta_{p,i} P_j - \rho_i T_j + \xi_j + \eta_i + \varepsilon_{ij}.$$

Instruments:

- characteristics and average price of books on separate markets
- weight of the book, the price of pulp, wages, and real GDP



Firms' choice

$$\max_{T_2 \in \{0, 1, \infty\}} \Pi(T_2 | x, \xi, \theta).$$

Profits are given by

$$\Pi(T_2 | x, \xi, \theta) = M [p_1 \cdot s_1(T_2 | x, \xi, \theta) + I(T_2 < \infty) (1 - T_2(1 - \delta_f)) p_2 \cdot s_2(T_2 | x, \xi, \theta)] - FC(T_2),$$

Table 7: Estimate Implications.

	Hardcover	Paperback
Type 1 shares, SIM:	0.20081	0.45677
Type 1 shares, SEQ:	0.67438	0.04004
Type 1 shares, HON:	0.47101	
Type 2 shares, SIM:	0.00200	0.03713
Type 2 shares, SEQ:	0.01042	0.03746
Type 2 shares, HON:	0.00127	
Type 1 sales, SIM:	465	1,058
Type 1 sales, SEQ:	1,562	93
Type 1 sales, HON:	1,091	
Type 2 sales, SIM:	195	3,627
Type 2 sales, SEQ:	1,018	3,659
Type 2 sales, HON:	124	
Number of type 1's:		2,317
Product choice: % Correct predictions		
When actual choice is SIM:		82.9%
When actual choice is SEQ:		65.7%
Distribution of ρ		
Mean		0.144
Mean given SIM		0.279
Mean given SEQ		0.079