Computing abuse related damages in the case of new entry: An illustration for the Directory Enquiry Services market

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Introduction

- EU drive to liberalise telecoms.
- EU guidelines on cost orientation and non-discrimination.
- In practice, Directory Enquiry (DQ) services were among the services last to be liberalised.
- 118AB offer value added services.
- Some countries decided to maintain a regulated number.
- One entrant on the Spanish market, a specialised Irish operator (Conduit), asked us to quantify possible damages stemming from the behaviour of the incumbent, the Telefónica Group.
- We use the experience of that entrant on the UK market to construct the “but for” scenario and quantify damages.

Supply and demand characteristics

- Supply:
  - Subscribers' database ("essential input");
  - Network access;
  - 118AB number;
  - Call Centres;
  - Search engines;
  - Constant marginal cost, no capacity constraints.
- Demand:
  - New product of unknown characteristics.
  - Search costs (large in relation to potential savings).

Market structure

- In the UK, the market is dominated by BT (35%) and The Number (45%), mid-sized players (Yell, Maureen, Conduit), and a myriad of small players (Share Charity, 118 GAY, Scope 118, international DQs). Incumbent BT has been displaced by a new entrant in one year.

- In Spain, entry has been more limited. The Telefónica Group is still dominant; there is a smaller number of second tier players compared to the UK.

Market structure, Spain

Table 1: Market shares in Spain, measured by revenues, minutes, and number of calls

	2003 (% of total)			2004 (% of total)		
	# of calls (million)	Revenue (million €)	Minutes (million)	# of calls (million)	Revenue (million €)	Minutes (million)
I: Telefónica de España (11822 & 11818)	92.45 (72.7%)	37.16 **(51.7%)**	69.55 (57.8%)	48.04 (48.2%)	27.91 **(30.1%)**	42.42 (35.1%)
II: TPI (Telefónica subsidiary, 11888)	18.16 (14.3%)	21.21 **(29.5%)**	29.33 (24.4%)	34.88 (35.0%)	45.56 **(49.1%)**	54.89 (45.5%)
Telefónica Group (I+II)	110.61 **(87.0%)**	58.37 **(81.2%)**	98.88 **(82.2%)**	72.92 **(83.2%)**	73.47 **(79.2%)**	97.51 **(80.6%)**
Telegate (11811)	6.79 (5.3%)	6.87 (9.5%)	9.80 (8.1%)	9.24 (9.3%)	10.62 (11.4%)	13.78 (11.4%)
Conduit (11850)	6.02 (4.7%)	3.02 (4.2%)	7.95 (6.6%)	NA	NA	NA
MGA (11824)	NA	NA	NA	3.38 (3.4%)	4.42 (4.8%)	4.40 (3.6%)
Others	3.84 (3.0%)	3.69 (5.1%)	3.64 (3.0%)	4.14 (4.2%)	4.35 (4.7%)	5.26 (4.4%)
Total	127.26 (100%)	71.95 (100%)	120.26 (100%)	99.69 (100%)	92.85 (100%)	120.74 (100%)

Source: Comisión del Mercado de las Telecomunicaciones, Informe Anual (2003, 2004).

Timing

- The UK market was liberalised in December 2002. 192 runs in parallel with commercial brands until the end of August 2003.
- In Spain, the market was, in principle, liberalised in April 2002. The old regulated number (1003) was to be abolished in April 2003.
- In February 2003, TPI (Telefónica subsidiary) launched its own brand. Telefónica also launched 11818 as a direct substitute for the regulated service in February 2003.
- No new entry in Spain prior to April 2003. Complaints with the sectoral regulator CMT (e.g. Telefónica dragged its feet to make an interconnection offer; when it did, the terms would have blocked downstream entry).
- Because of the difficulties faced by the entrants, the CMT imposed a carrousel on the day that 1003 disappeared.
- The CMT forced Telefónica to make a non-discriminatory and cost-oriented interconnection offer.

Competitive interaction

- Advertising intensive industry (in Spain, advertising intensity above 15%).
- Importance of search costs in relation to potential savings (in Spain, less than 3 calls per annum per inhabitant; average cost of call approx. 0.80€; average potential savings of the order of 0.50€ per year).
- The opening-up of the market of the market naturally divides into a “launch phase” and a “stabilisation phase”.
- “Stabilisation phase” market shares are a function of “launch phase” market shares.
- In the “stabilisation phase”, inducing a consumer to switch brand through advertising is much more expensive than retaining an existing customer (5 to 1 ratio).
- **The existence of search costs implies that actions taking place during the launch phase may have permanent effects.**

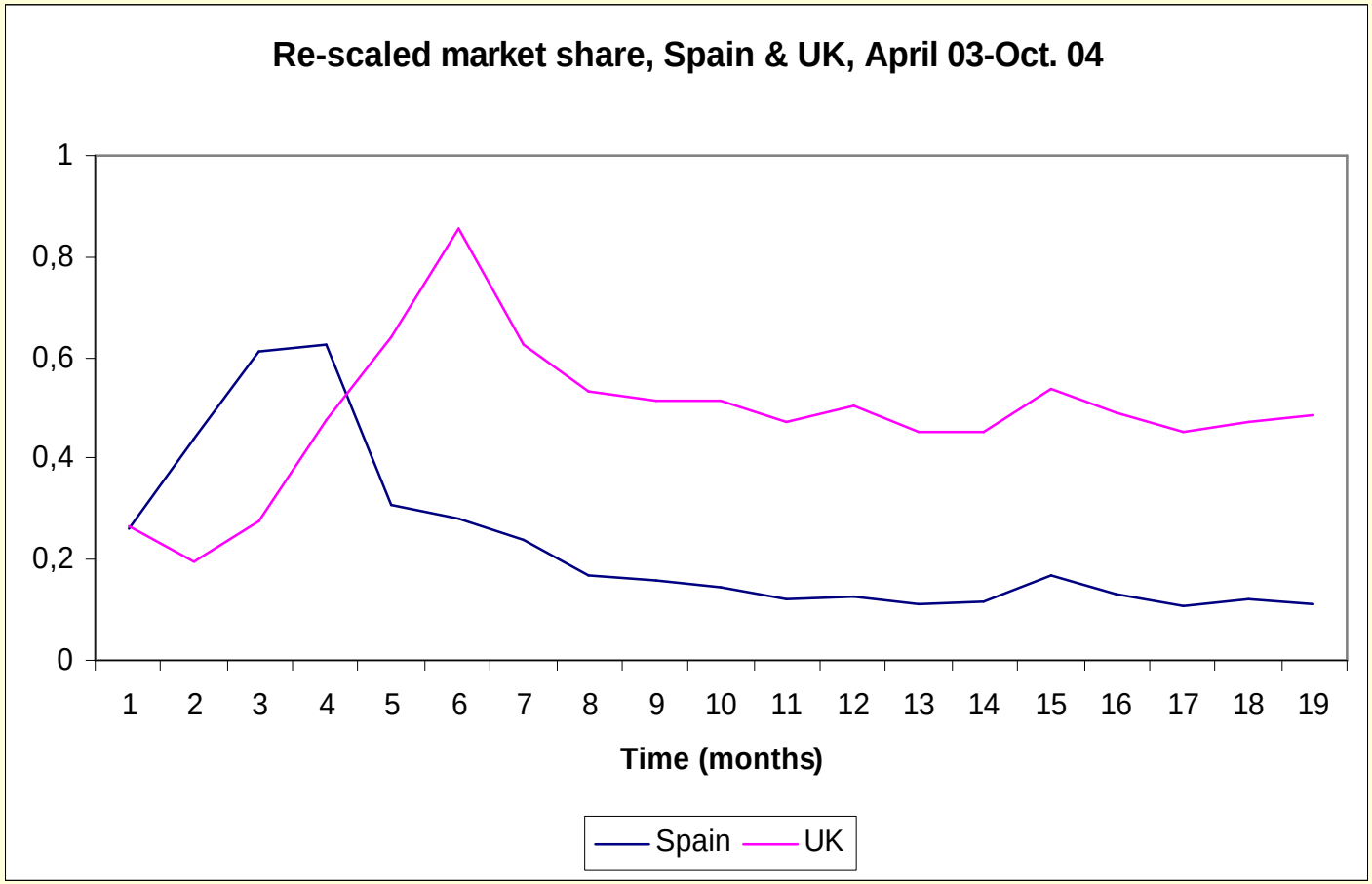
The issue

- The entrant claimed that the incumbent impeded entry:
  - Made entry impossible prior to April 2003.
- The subscribers' database had to be provided for free in a pre-specified format. When the incumbent finally provided the database, the latter was incomplete and defective. Confirmed by Spanish Court (Judgment of the 5th Commercial Court of Madrid of 11th November 2005, Conduit vs. Telefónica, Case No. 36/2005). FUN numbers missing (many of which are 90X and 80X), and the information pertaining to non-FUN numbers did not respond to the criteria set by the regulator (CMT). This had two effects:
  - It inflated the entrant's costs (Raising Rival's Direct Cost, RRDC);
  - The entrant had to offer a lower quality product (forced Quality Deterioration, QD).

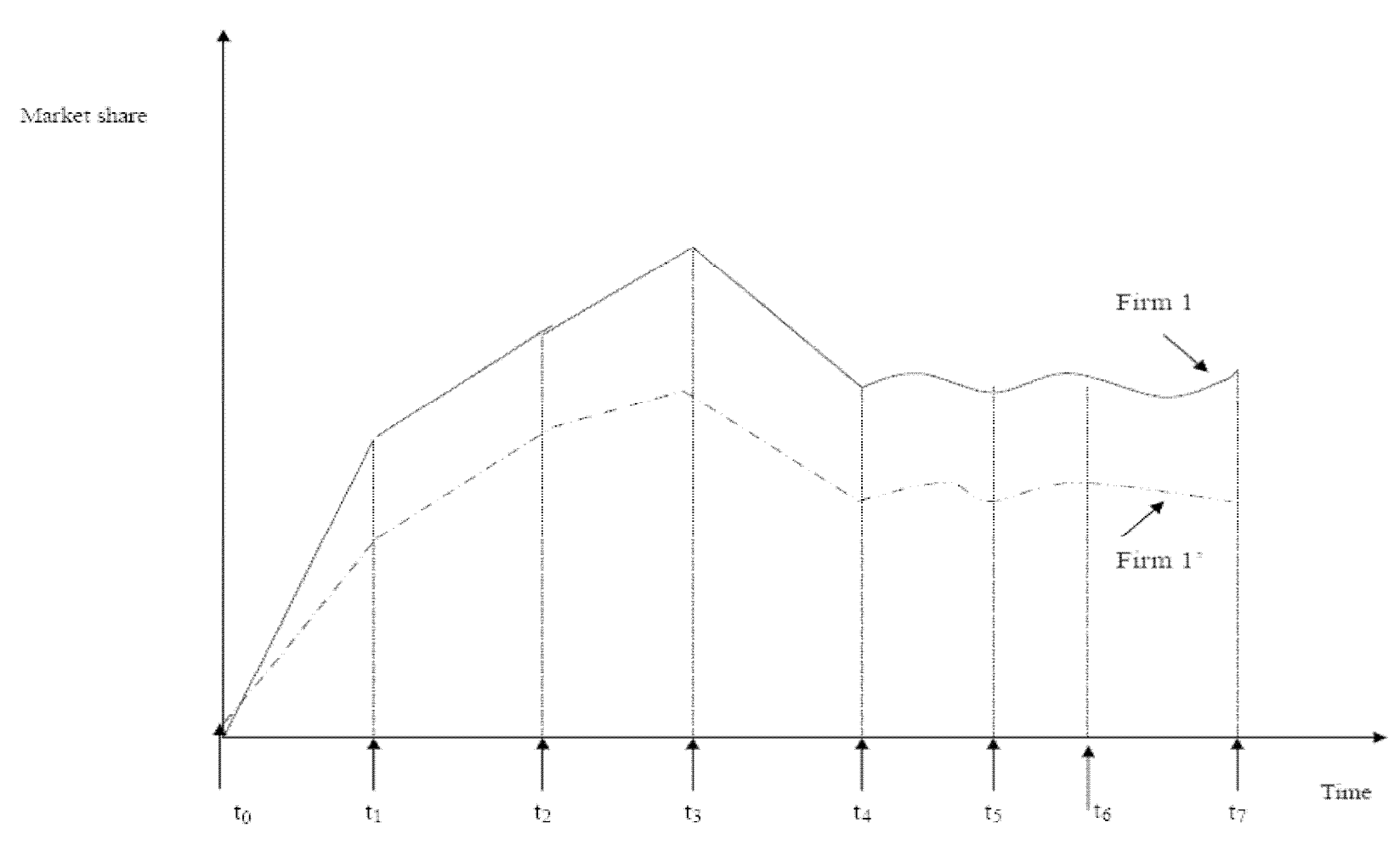
Effect on post-entry performance

- For practical purposes, it is useful to distinguish between the effect on costs (RRDC) and on demand (forced QD).
- RRDC:
  - E-115;
  - Higher AHTs;
  - Legal and consultancy fees;
  - Extra personnel hired to “fix” the database.
- Forced QD:
  - Inward shift of the residual demand faced by the entrant, higher AHTs.
- Observed pricing for the entrant:
  - *P=MC* during the launch phase (approx. 6 months) followed by large price increases. The launch is supported by heavy advertising.

Market share over time, Spain & UK



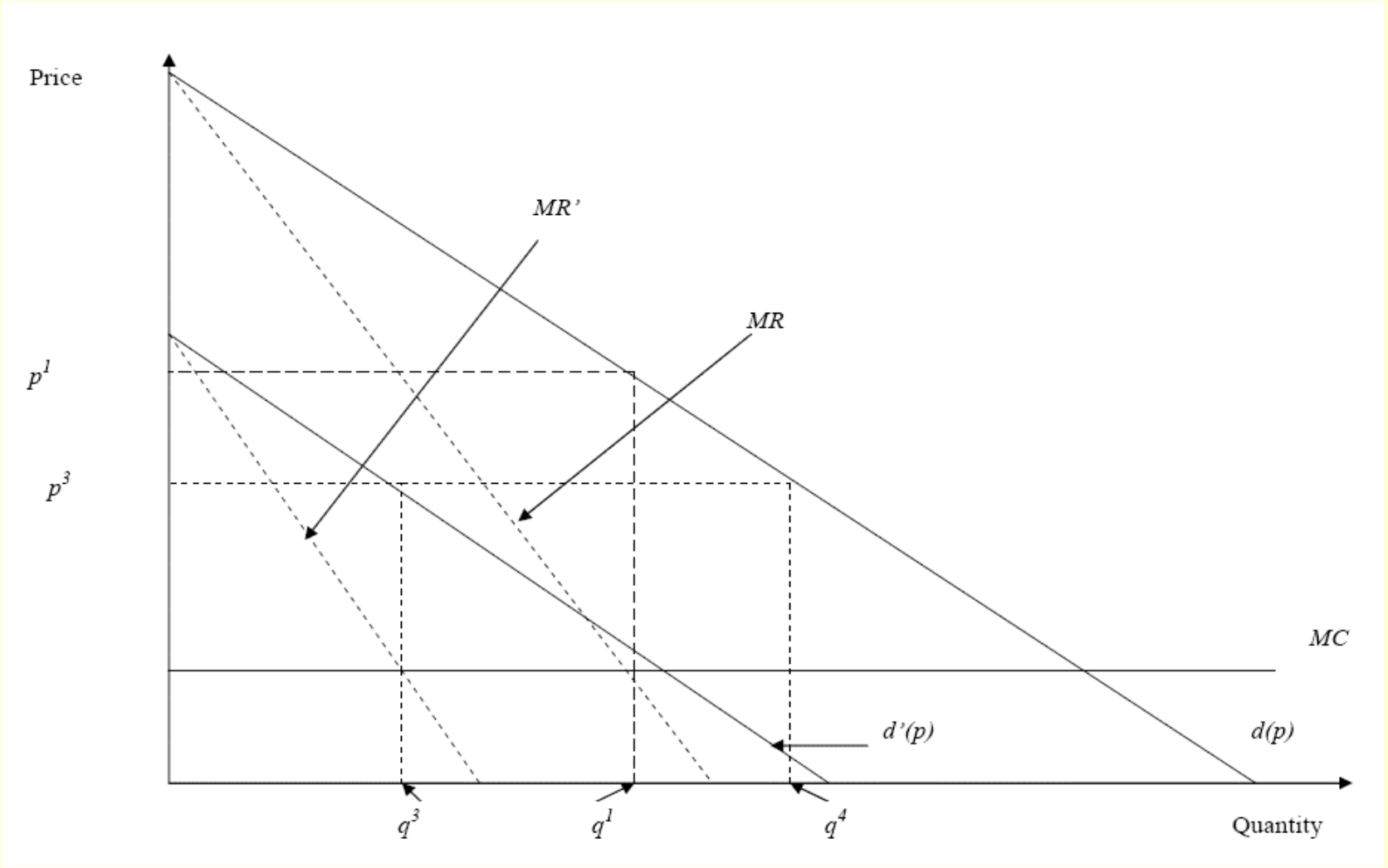
Market shares with and without abuse (RRDC+ forced QD)



Damage quantification

- We can not estimate total damages.
- We directly observe (some) of the extra costs incurred by the entrant.
- What we estimate is the market share that the entrant ought to have achieved in the absence of forced QD, given its prices and advertising effort.
- We use the entrant's performance in the UK to construct the "but for" scenario.
- The final damage estimate is the sum of "direct costs" and "lost sales due to forced QD".

Quantification of damages: “Forced QD”



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Use of the UK to build the "but for" scenario

- We observe the same firm on both markets.
- The entrant enters both markets in the same manner.
- The date of entry is the same (April 2003).
- Per capita incomes are similar (SP=98, UK=118).
- In that market, advertising per inhabitant (ratio of total advertising to potential market size) is very similar.
- Technology as well as costs are identical (or very similar).

Use of the UK to build the "but for" scenario

- However, we believe that, in the absence of abuse, entry would have been more difficult in the UK as compared to Spain:
  - Larger number of competitors;
  - "The Number" turned out to be a formidable competitor;
  - The UK pioneered telecom liberalisation;
  - The old regulated number was maintained until the end of August 2003 (which we control for) .
- Although they have converged, average prices remain higher in Spain.

Estimation

- We follow two approaches: marketing (eq. 1) and discrete choice (eq. (2) logit demand with aggregate data).

$$MS_t^{UK} = a_0^{UK} + ß_1^{UK} relP_t + ß_2^{UK} relA_t + ß_3^{UK} Q't + e_t \qquad (1)$$

$$lnS_t = lnS_{0t} + d_0^{UK} + ?_1^{UK} P_t + ?_2^{UK} A_t + ?_3^{UK} Q't + ?_t \qquad (2)$$

- Where:
  - MS stands for market share;
  - S_{0t} is the outside option;
  - $relP_t$ is the entrant's relative price;
  - $relA_t$ its relative advertising effort;
  - P_t is the entrant's price;
  - A_t is expenditure in advertising ;
  - $Q't$ a series of time dummies to account for Bank Holidays, summer months, Christmas and daily time effects .

Estimation

- For the entrant, we have daily data on call volumes and AHTs.
- For competitors, we have average AHTs; we do not observe their call volumes.
- For advertising, we have monthly spend, both for the entrant and competitors (we turn monthly data into daily their daily counterpart).
- Market size is not observed: it has to be inferred.

Estimation

- Two avenues for eq. (1): additive and multiplicative market shares.
- We obtain daily time effects for Spain through a three stage procedure.
- The estimation of both (1) & (2) control for endogneity (prices exogenous; advertising instrumented).
- We use the parameter estimates obtained for the UK to predict the entrant's market share in Spain.

Results: multiplicative and additive

Table : Estimates of the entrant's market share, UK market

	Additive Model [I]		Multiplicative Model [II]	
Explanatory variables	(A)	(B)	(A)	(B)
Relative price, *t*	-0,0893*	0,0113	-0,4881*	0,0553
Relative advertising, *t*	0,2365*	0,0274	0,0179*	0,0048
Constant	0,1735*	0,0099	-2,0785*	0,0743
Time dummies				
April-August 2003	-0,0398*	0,0070	-1,1609*	0,0876
Bank Holidays	-0,1370*	0,0098	-0,8072*	0,1333
July	0,0144*	0,0030	0,1618*	0,0531
August	0,0423*	0,0052	0,3394*	0,0739
Christmas	-0,0198*	0,0062	-0,2568**	0,1195
Year dummy	0,0124*	0,0028	0,2575*	0,0409
Tuesday	-0,0019	0,0045	0,0038	0,0475
Wednesday	-0,0034	0,0043	-0,0099	0,0474
Thursday	-0,0030	0,0042	-0,0083	0,0492
Friday	-0,0062	0,0042	-0,0449	0,0468
Saturday	-0,0576*	0,0043	-0,7088*	0,0489
Sunday	-0,0824*	0,0044	-1,2668*	0,0499
Number of observations	575		575	
R-square	0.642		0.765	

Notes: (A): coefficient estimates; (B) standard error
(*) Significant at the al 1%; (**) Significant at 5% level; (***) Significant at the al 10% level.
(1) Endogenous regressors: Model I and II Relative advertising;
Instruments: (Total advertising-Advertising of entrant)

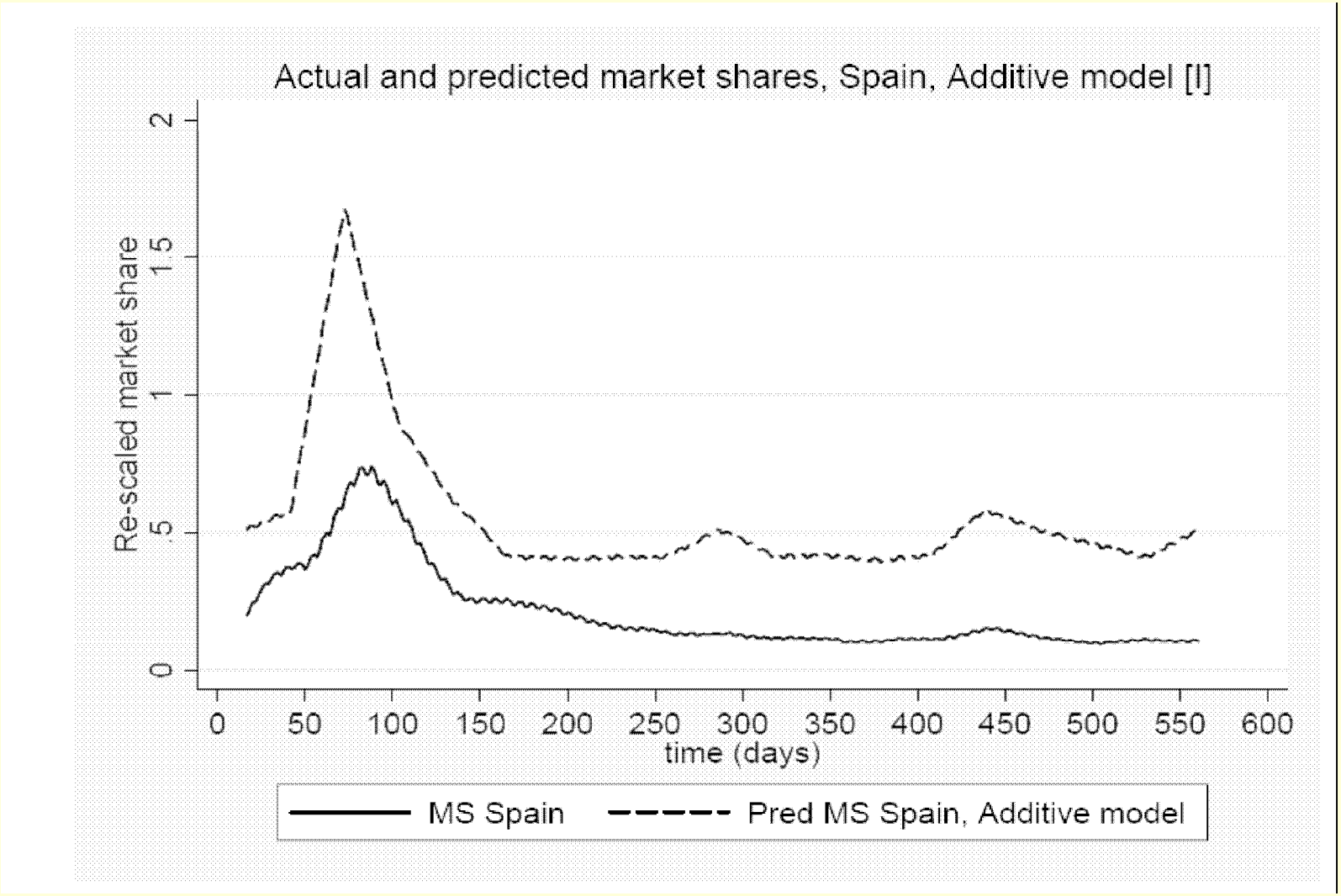
Results: logit demand

Table : GMM estimates of the entrant's logit demand model, UK market

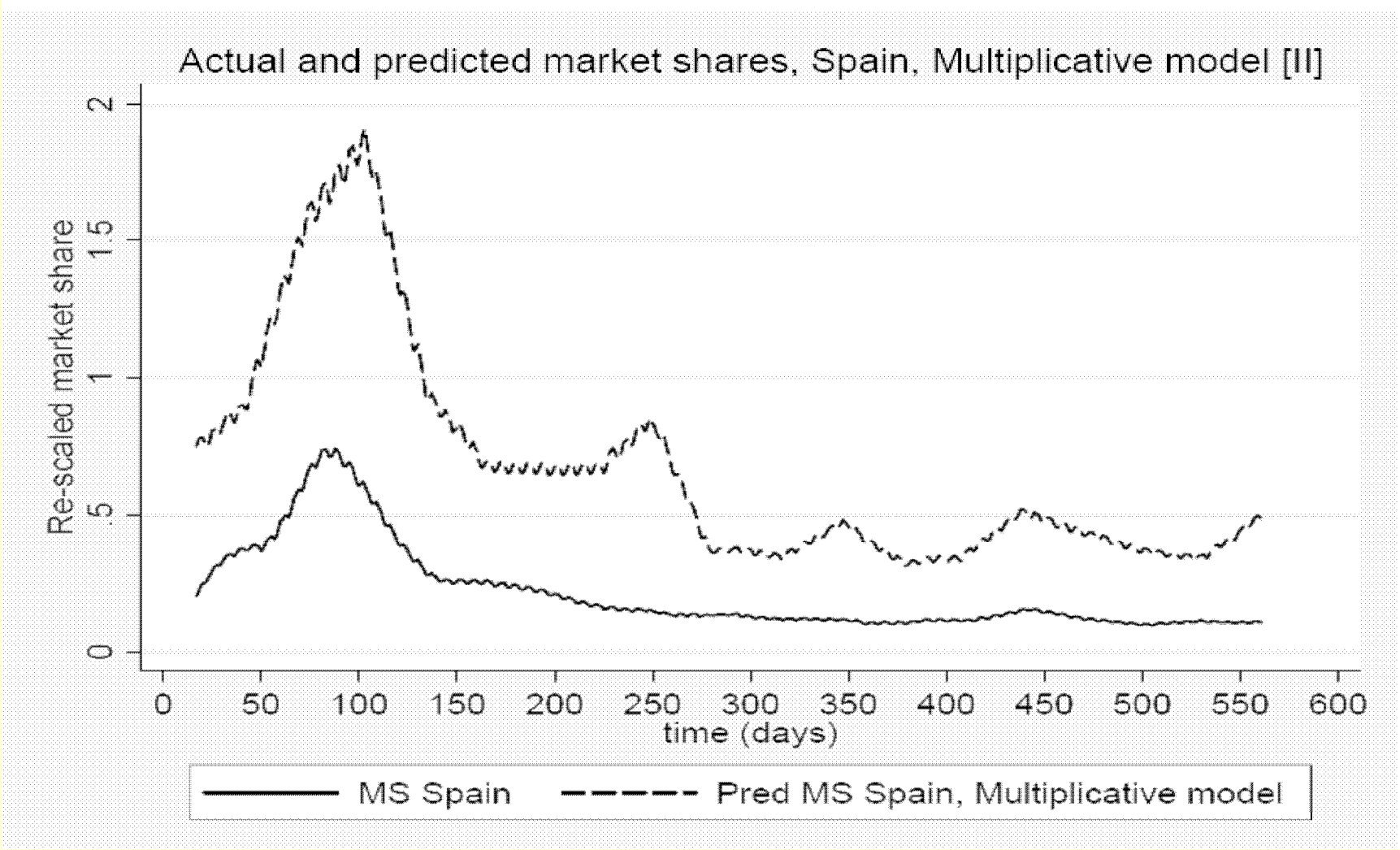
Logit model [III]		
Explanatory variables	(A)	(B)
Relative price, *t*	-4,8471*	0,3706
Relative advertising, *t*	2,0889*	0,1258
Constant	-0,7558*	0,0832
Time dummies		
April-August 2003	-0,7766*	0,0342
Bank Holidays	-0,7316*	0,1207
July	0,1225*	0,0307
August	-0,0600	0,0376
Christmas	-0,3189*	0,1155
Year dummy	0,4689*	0,0312
Tuesday	0,0078	0,0363
Wednesday	-0,0131	0,0362
Thursday	-0,0125	0,0394
Friday	-0,0527	0,0355
Saturday	-0,7093*	0,0381
Sunday	-1,2695*	0,0394
Number of observations	575	
R-square	0,903	

Notes: (A): coefficient estimates; (B) standard error
(*) Significant at the al 1%; (**) Significant at 5% level; (***) Significant at the al 10% level.
(1) Endogenous regressors: Advertising; Instruments: (Total advertising-Advertising of entrant)

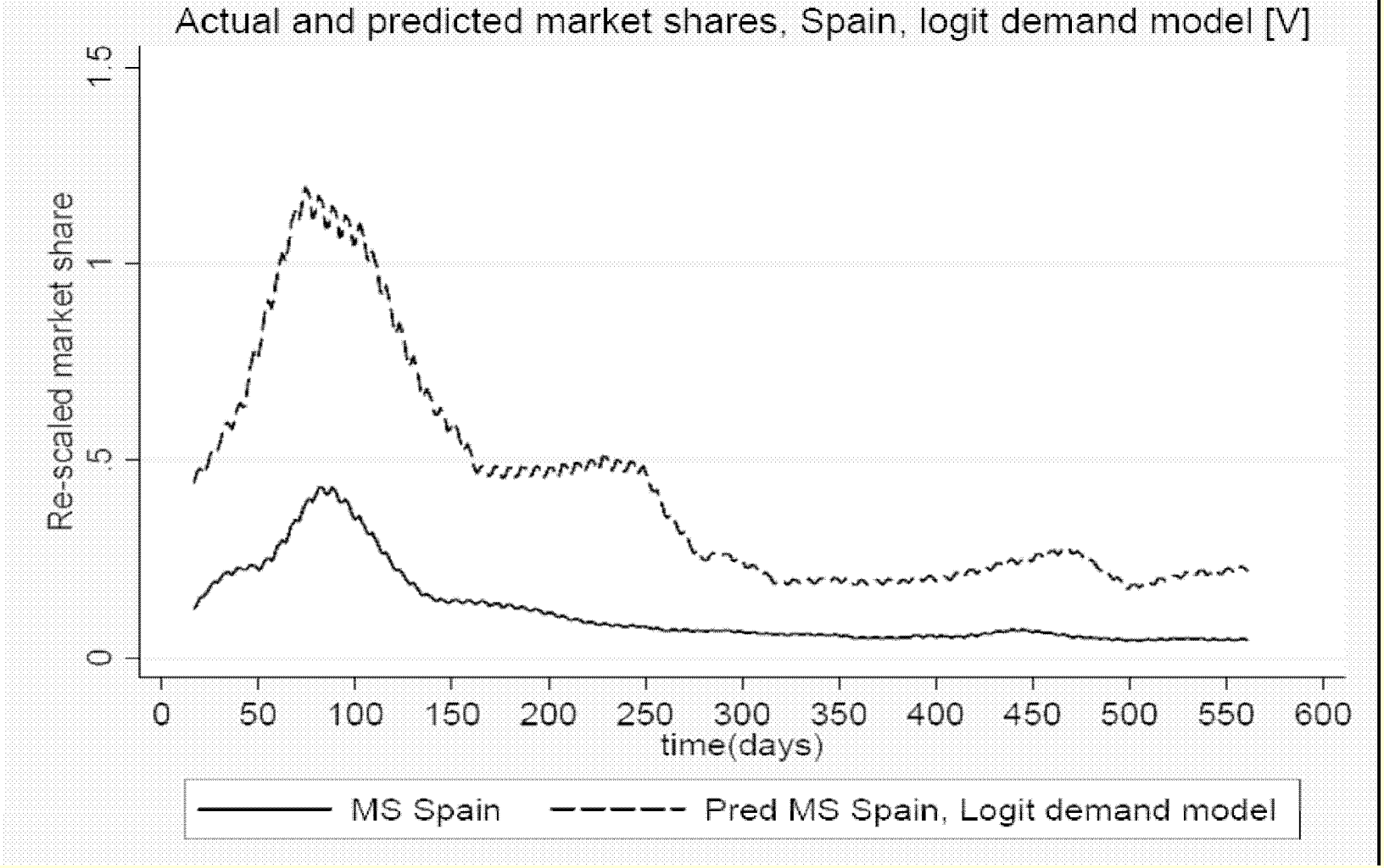
Predicted and actual market shares



Predicted and actual market shares



Predicted and actual market shares



Damage estimates

Table : Damage estimates and number of lost calls (Model [I] = 100).

	Model	# of calls lost	Lost profits
Additive	I	100,0	100,0
Multiplicative	II	139,5	113,5
Logit Demand	V	115,9	96,7
Using UK data (prices and advertising)			
Additive	I	114,6	48,8
Multiplicative	II	184,9	43,3
Logit Demand	V	195,1	42,4

Robustness checks

- Observed UK prices and advertising.
- Since we do not observe daily advertising and market shares, turning monthly variables into daily ones may introduce a bias (of unknown sign) in our estimates. We therefore re-estimated a monthly version of (1).
- We have monthly market share estimates of the entrant's main competitors in Spain for the period July 2003 - October 2004.
- We wanted to check that our estimates could also predict the "ups" and "downs" of competitors' market shares.
  - This involves using the parameter estimates obtained for the entrant on the UK market *to predict the behaviour of competitors on the Spanish market*.
  - This is only possible up to a scale parameter, since we do not estimate a constant for each operator.

Estimates with monthly data

Table: OLS estimates of Conduit's market share with monthly data, UK market,

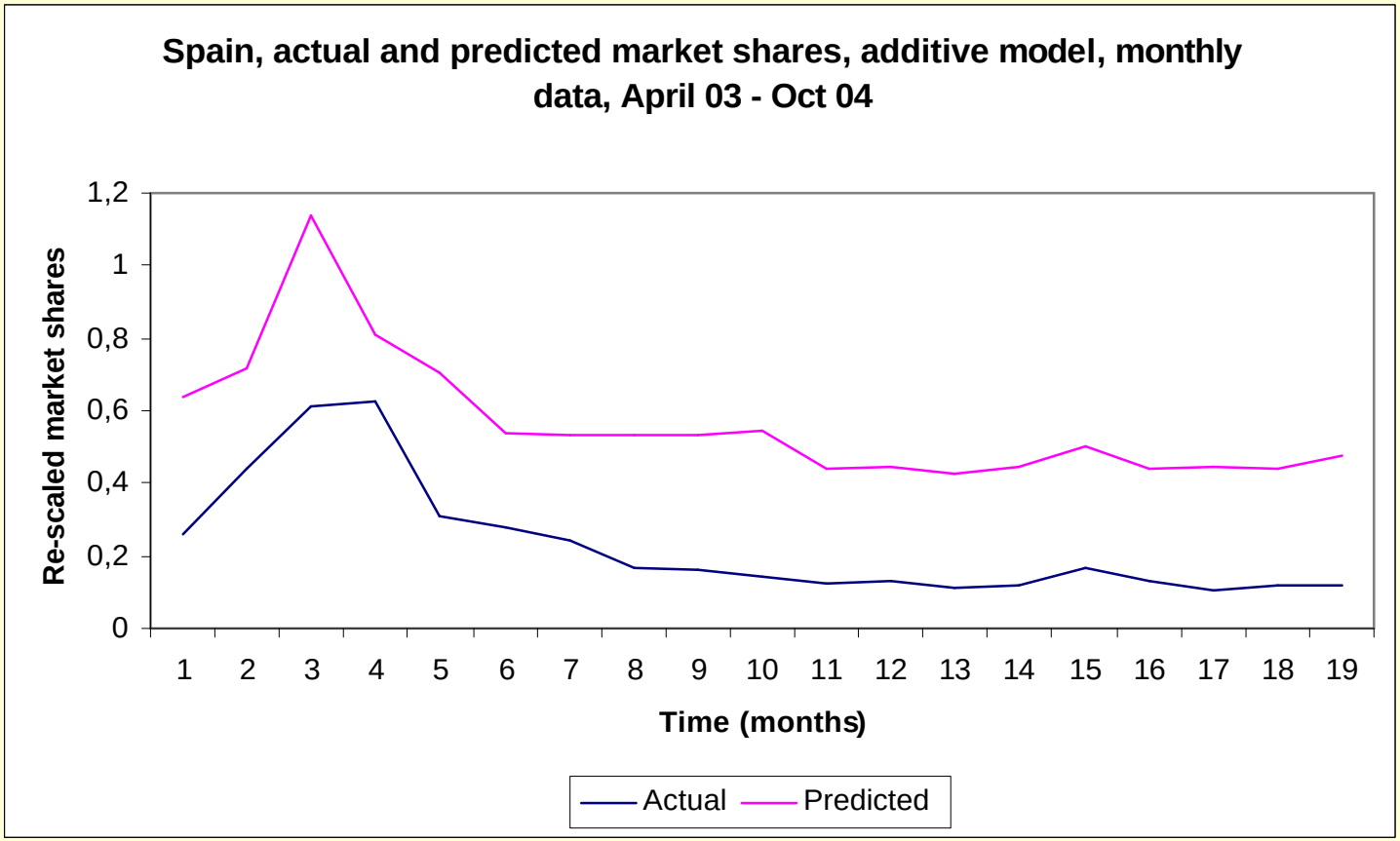
Explanatory variables	Additive model		Multiplicative model	
	(A)	(B)	(A)	(B)
Relative price, t	-0.0957*	0.0291	-0.6404***	0.3067
Relative advertising, t	0.0848**	0.0360	0.0046	0.0063
April-August 2003	-0.0852*	0.0168	-0.8354*	0.2408
Constant	0.1722*	0.0251	-2.4053*	0.1181
Number of observations	19		19	
Adjusted R^2	0.5611		0.3916	

Notes:

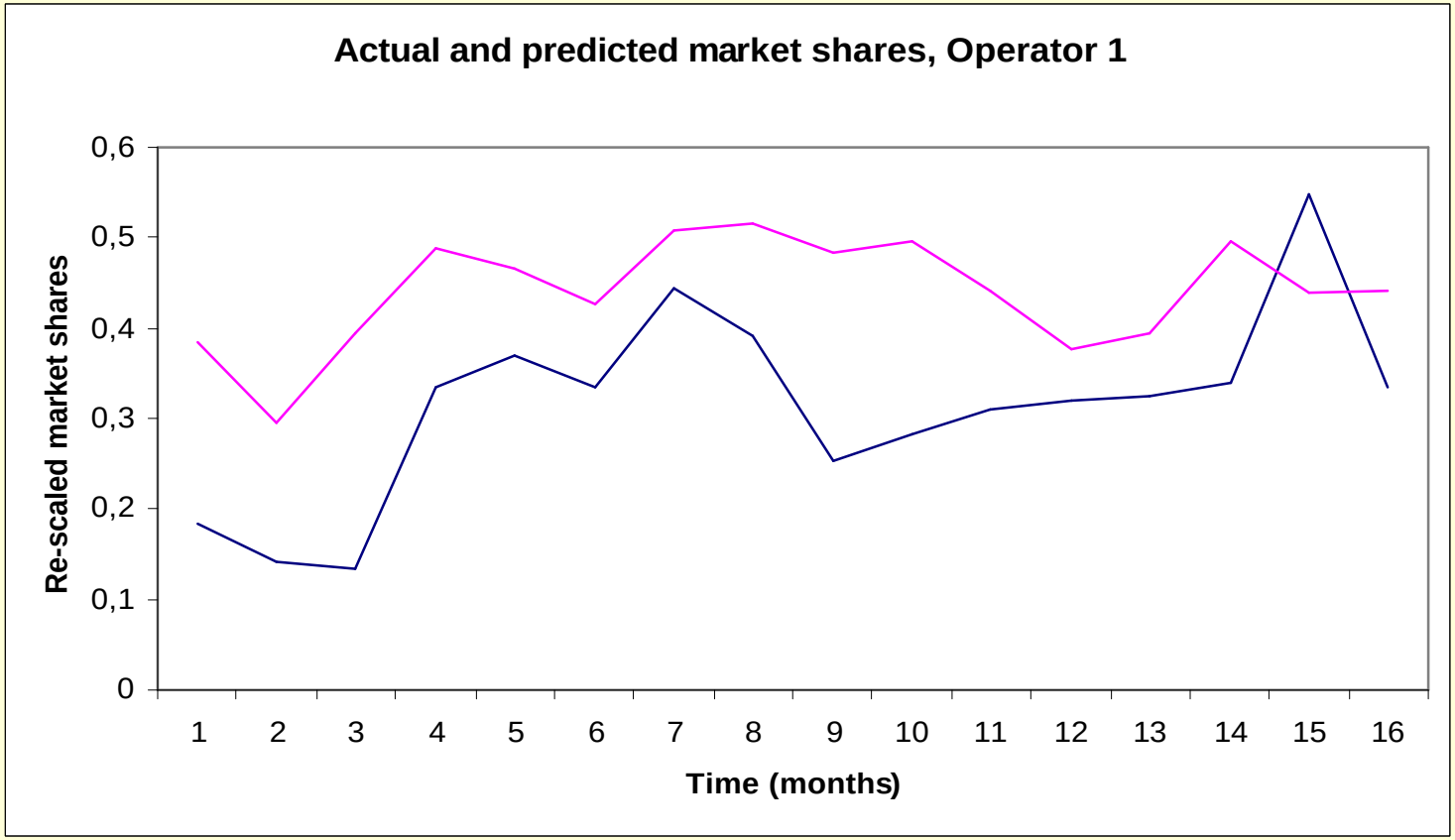
(A): coefficient estimates; (B) standard error

(*) Significant at the 1%; (**) Significant at the 5%; (***) Significant at the 10%

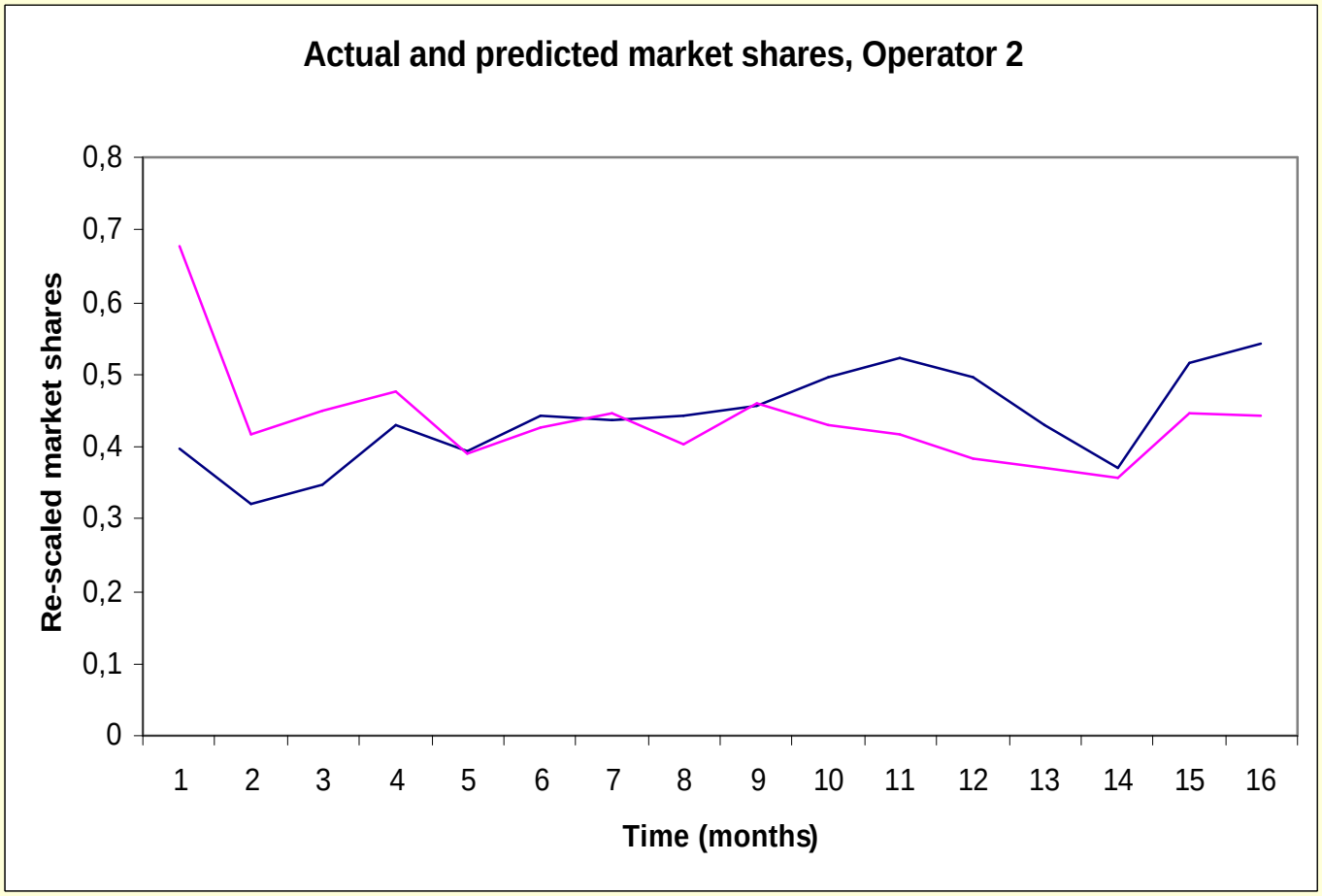
Predictions with monthly data



Competitors' predicted market shares (additive model)



Competitors' predicted market shares (additive model)



Conclusions

- Following the government's decision to liberalise the regulated service, Telefónica raised the price of 11818 (substitute of the old regulated number) from 0.35 € to 0.55€ in July 2005. It also coincides with the moment the “entrant” exited the market.
- In that particular case, simple quantitative techniques yield robust results.

Conclusions

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Una sentencia obliga a Telefónica a pagar a un competidor por abuso de dominio

Es la primera vez que un juzgado mercantil condena a la compañía a indemnizar a un rival

RAMÓN MUÑOZ, Madrid

Telefónica ha sido condenada por un tribunal mercantil, por primera vez, a indemnizar a un competidor por abusar de su posición de dominio. Una sentencia de los nuevos juzgados de lo mercantil ha condenado a la operadora a pagar 670.000 euros por no facilitar a Conduit las bases de datos necesarias para su negocio de información telefónica a través de los números 118. Hasta ahora, la compañía había sido condenada por el regulador del mercado, la CMT. El fallo abre la puerta a otras reclamaciones multimillonarias en los juzgados.

Telefónica

Court rules against Telefónica in competition lawsuit

By Mark Mulligan in Madrid
Published: November 28 2005 12:31 | Last updated: November 28 2005 14:09

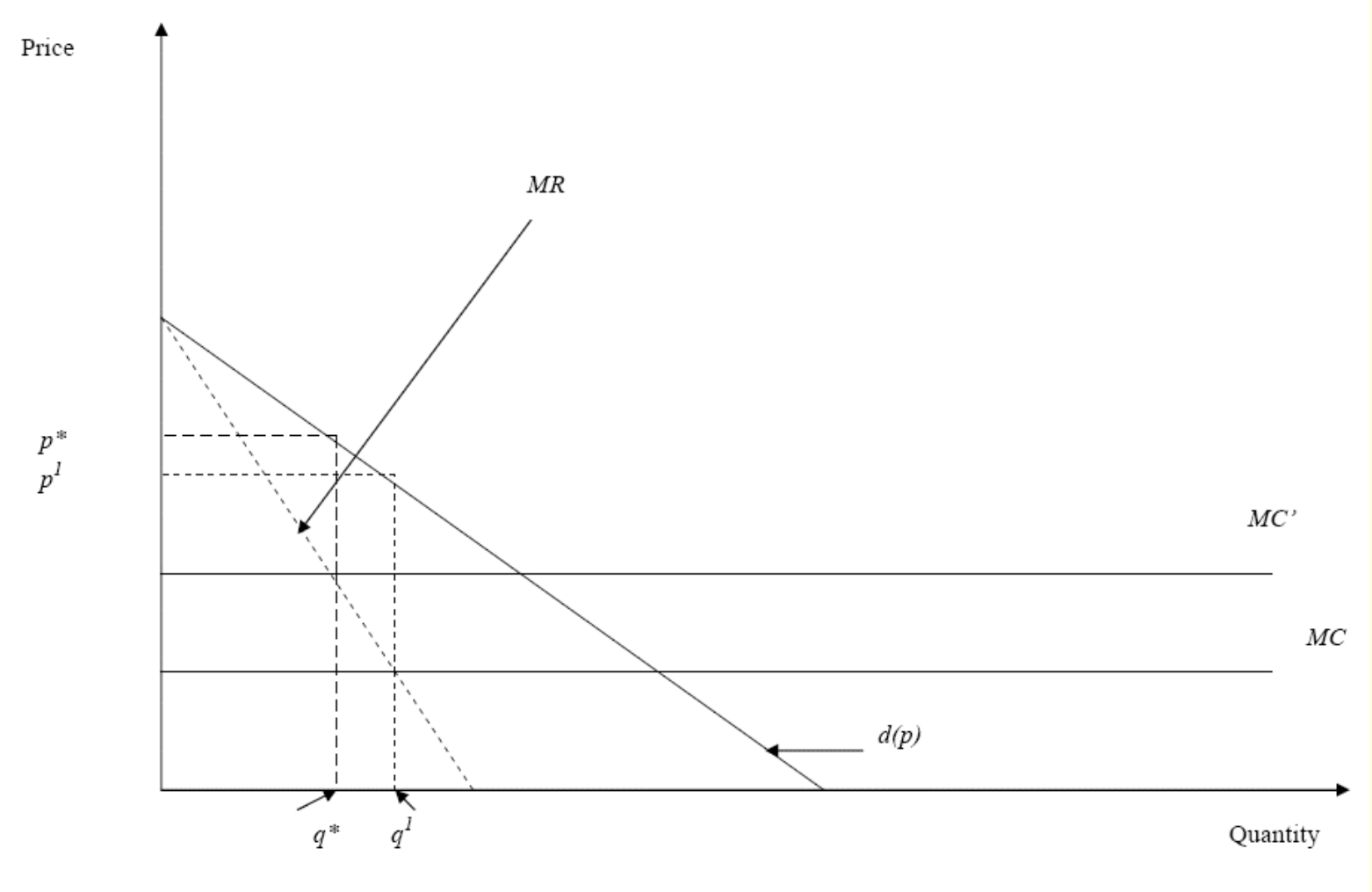
A Spanish court has ordered Telefónica to pay damages for breach of competition rules in an unprecedented case that is likely to clear the way for further lawsuits related to abusive practices in the country's regulated sectors.

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Rationality of the incumbent's actions

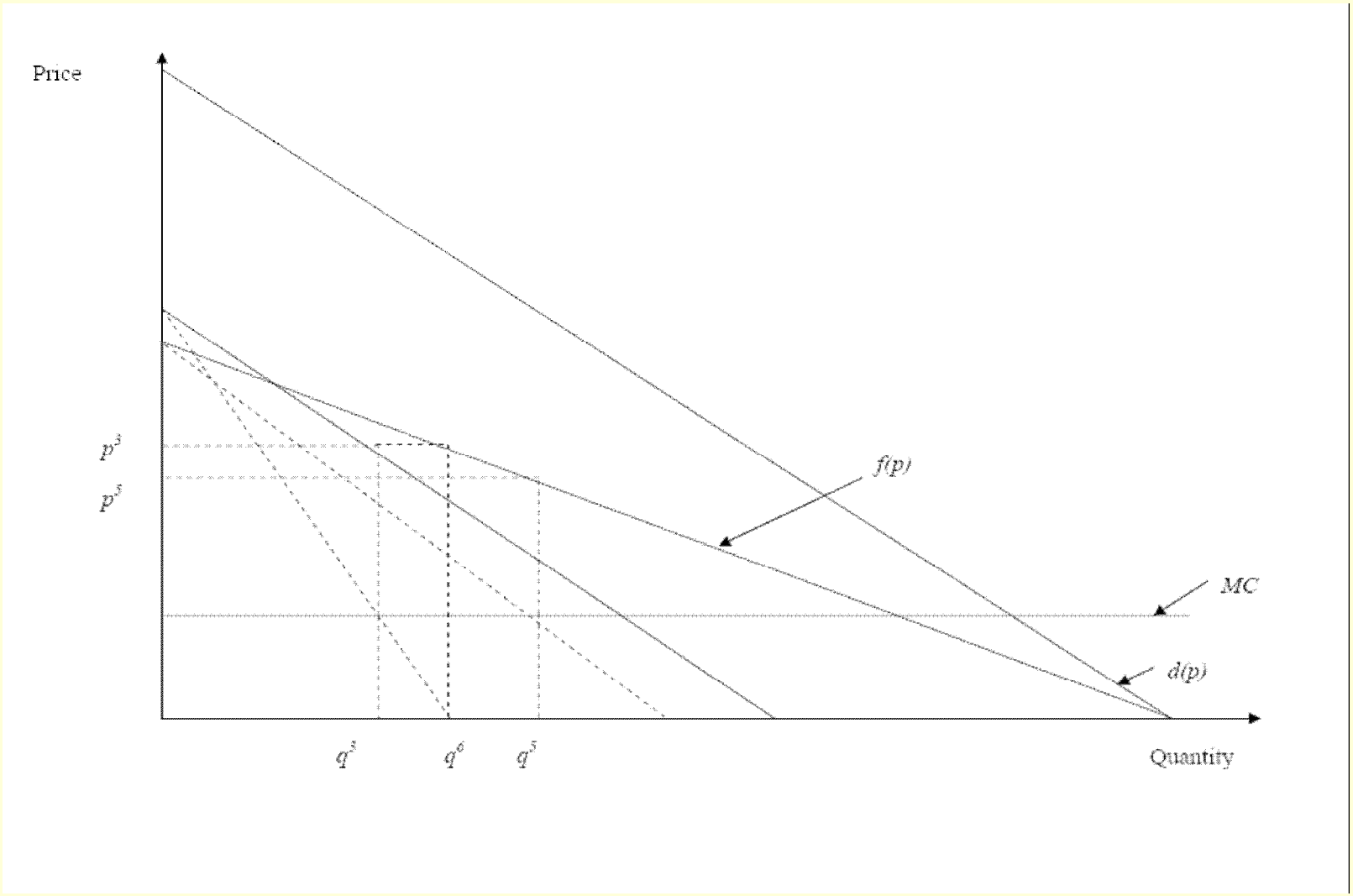
- A combination of RRDC *cum* forced QD is particularly attractive.
- Salop & Scheffman (1983, 1987), but with possibility of discrimination.
- Economides (1998) contemplates both RRDC and forced QD.
- In this market, the incentive to sabotage entry dominates (Mandy (2000)).
- The effect of abuse during the launch phase is permanent due to the existence of large search costs in relation to potential savings (NERA (2003), NAO (2004)).

Quantification of damages: “Direct Costs”



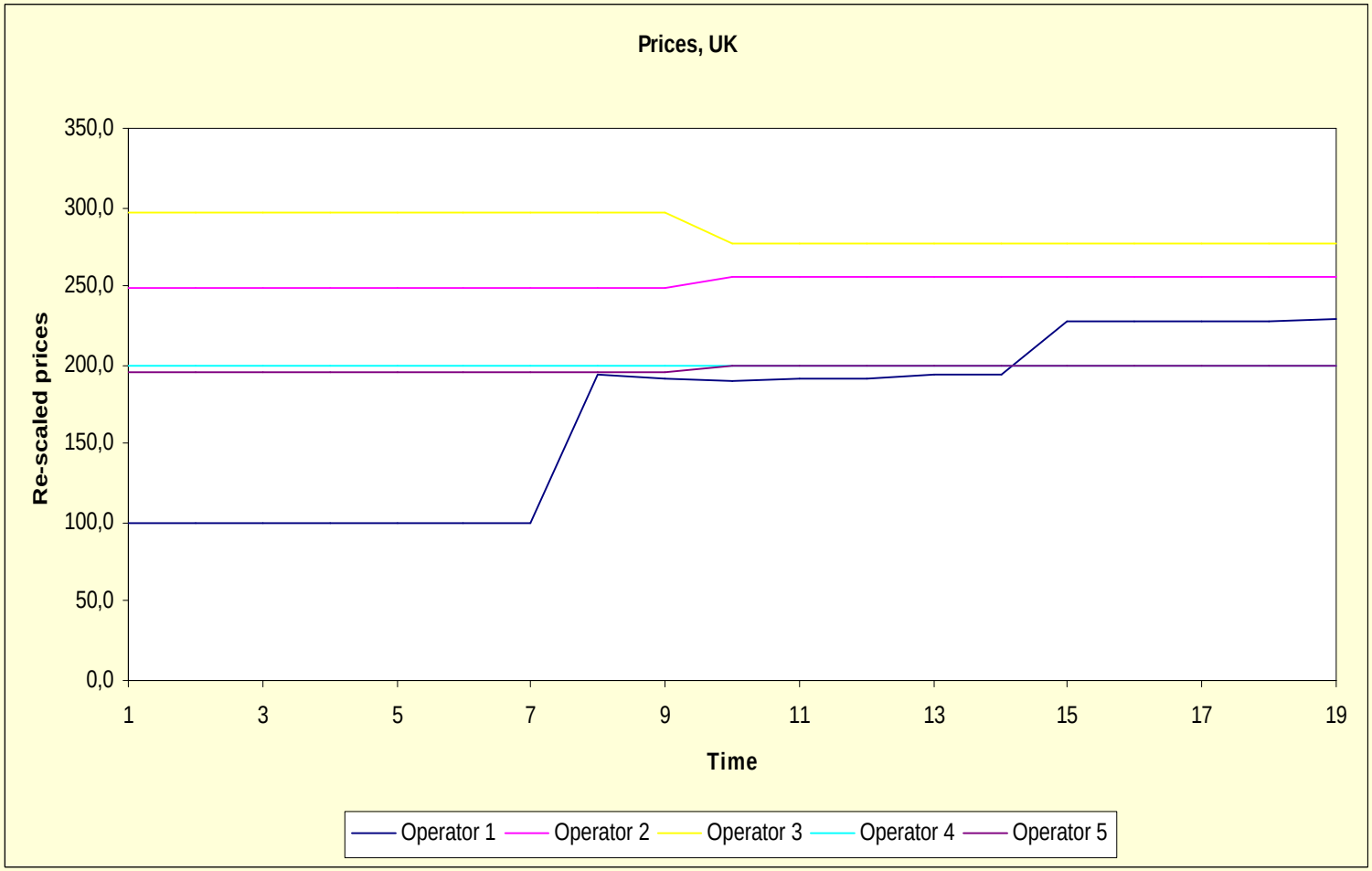
Computing abuse related damages in the case of new entry: An illustration for the Directory Enquiry Services

Quantification of damages: in the absence of "forced QD", intensity of competition higher

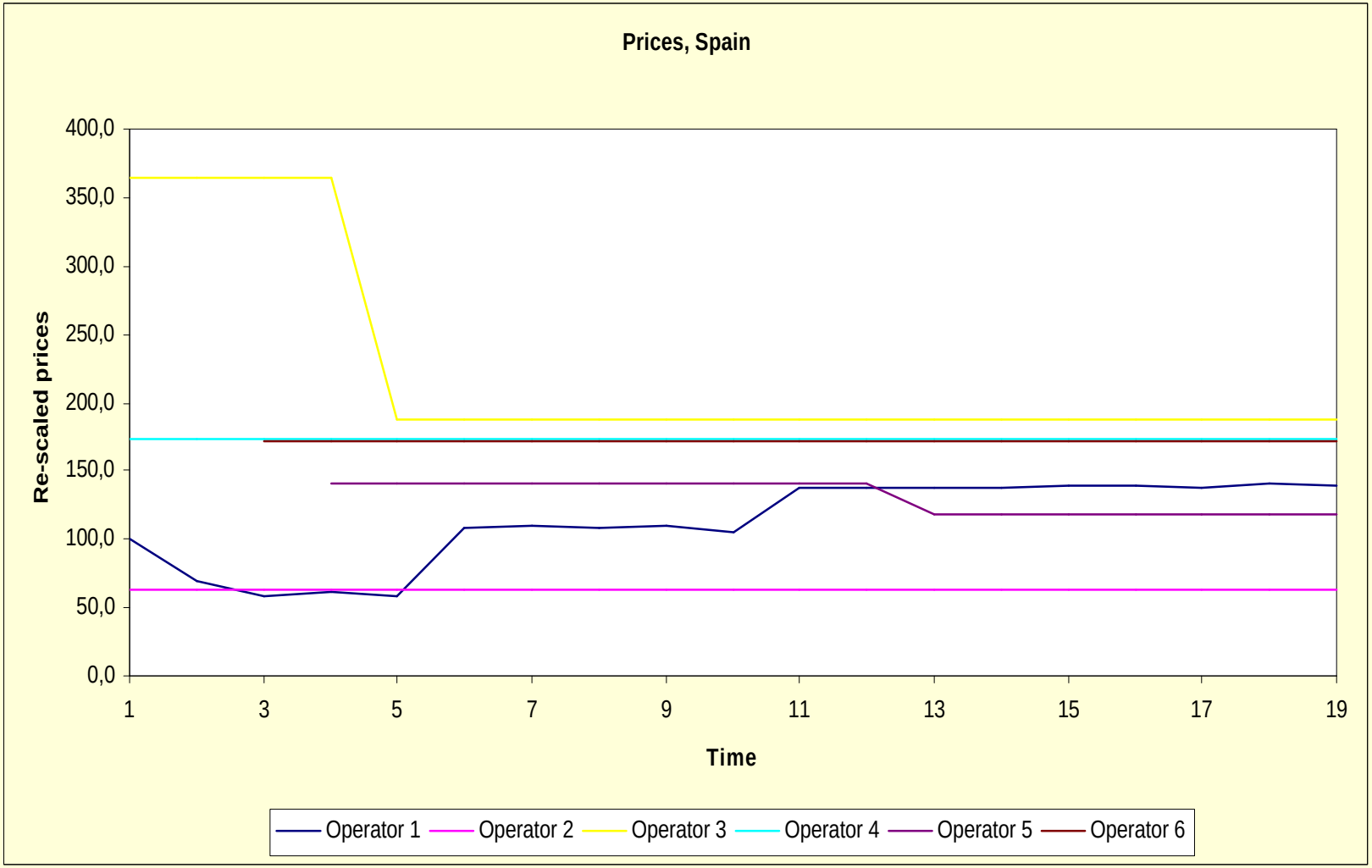


Computing abuse related damages in the case of new entry: An illustration for the Directory Enquiry Services

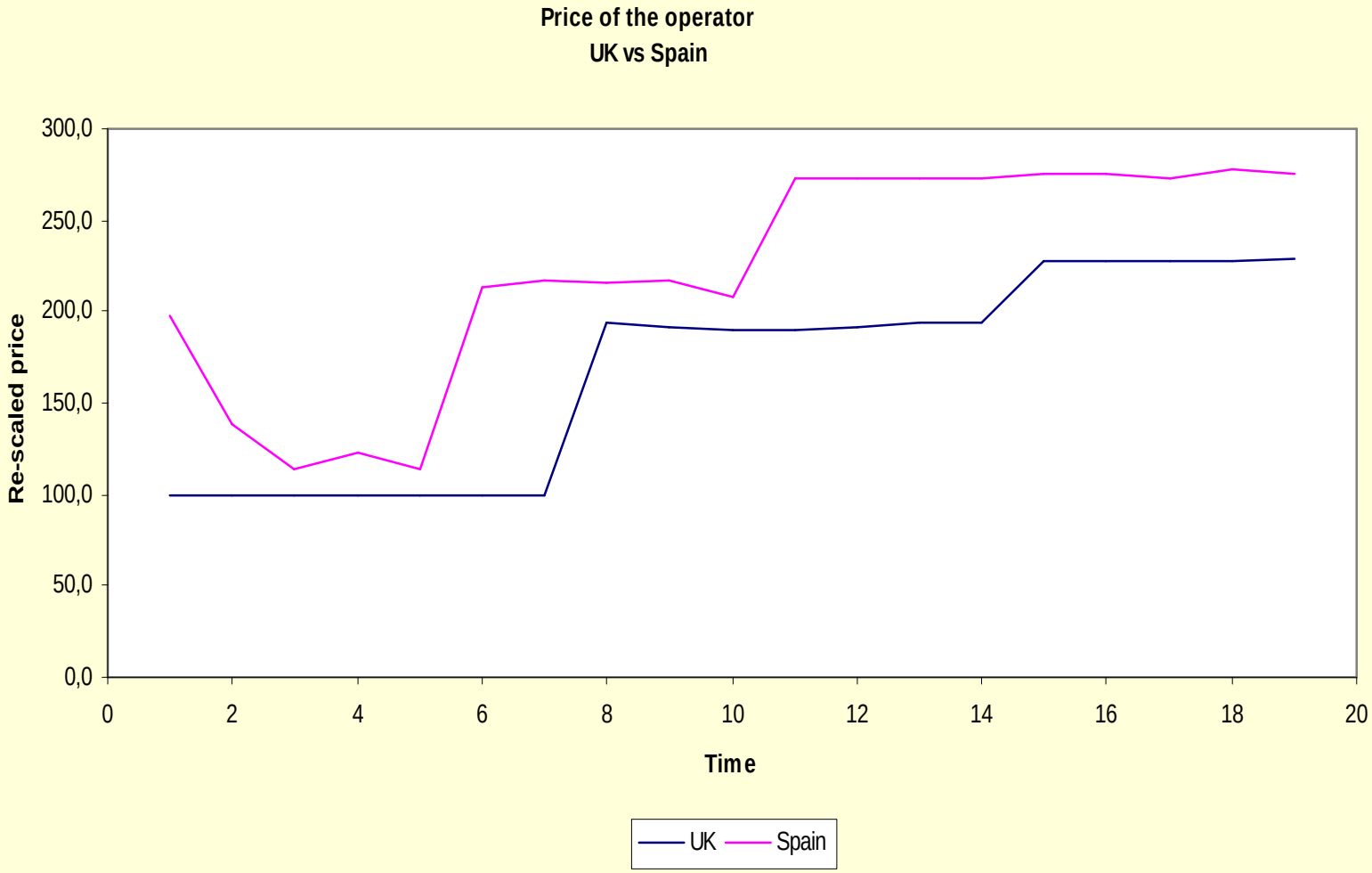
Prices, UK


Prices, UK
Re-scaled prices
350,0
300,0
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200,0
150,0
100,0
50,0
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3
5
7
9
11
13
15
17
19
Time
Operator 1
Operator 2
Operator 3
Operator 4
Operator 5

Prices, Spain



Entrant's prices UK & Spain



Prices, UK & Spain



Endogeneity tests

Table : Tests for the specification of models [I] to [III]

	MODEL		
	Additive	Multiplicative	Logit demand
TESTS:	Model I	Model II	Model III
Exogeneity of prices	1.0230	0.0230	1.1380
$\chi^2(1)$: p-value	0.3118	0.8789	0.2862
Hansen J statistic of overidentifying restrictions	1.0230	0.3120	1.2120
$\chi^2(2)$: p-value	0.5995	0.8556	0.5454
Exogeneity of advertising	48.5520	25.2140	5.6420
$\chi^2(1)$: p-value	0.0000	0.0000	0.0175
Redundancy of instrument (lagged values)	0.6880	0.8480	0.2160
$\chi^2(2)$: p-value	0.7091	0.6544	0.8977

Endogenous regressors: Relative advertising in models I to II and Advertising in model III

Instruments: (Total advertising-Advertising of entrant) dated in *t, t-1* and *t-2*

Summary statistics

Table 2: Summary statistics

Variable	# of observations	Mean	Standard deviation	Min	Max
Market share, UK	575	0.091	0.045	0.012	0.259
MS (over potential market), UK	575	0.059	0.032	0.010	0.194
Relative price, UK	575	0,751	0,212	0,480	0,995
Relative advertising, UK	575	0,132	0,158	0,000	0,421
Price, UK	575	0.480	0.153	0.285	0.661
Advertising x 10^{-6}, UK	575	0.031	0.048	0.000	0.185
Market share, Spain	575	0.039	0.036	0.003	0.206
MS (over potential market), Spain	575	0.024	0.025	0.002	0.140
Relative price, Spain	575	0,769	0,219	0,322	0,985
Relative advertising, Spain	575	0,064	0,189	0	0,842
Price, Spain	575	0.637	0.170	0.300	0.819
Advertising x 10^{-6}, Spain	575	0.007	0.019	0.000	0.081
Dummy April-August (UK only)	575	0,257	0,438	0	1
July	575	0,108	0,310	0	1
August	575	0,108	0,310	0	1
Christmas	575	0,016	0,124	0	1
Bank Holidays, UK	575	0,023	0,149	0	1
Bank Holidays, Spain	575	0,028	0,165	0	1