

ESTIMATION OF RESIDENTIAL WATER DEMAND

WITH IMPERFECT PRICE PERCEPTION

Tableaux & Figures

Marie-Estelle BINET^a, Fabrizio CARLEVARO^b & Michel PAUL^c

^a *CREM (UMR 6211 CNRS), University of Rennes 1,*

^b *University of Geneva, Department of Economics, Switzerland,*

^c *CEMOI, University of Réunion, France.*

For corresponding: michel.paul@univ-reunion.fr

Figures 1 Water tariffs

Figure 1-a : IBTs with two-tier structure

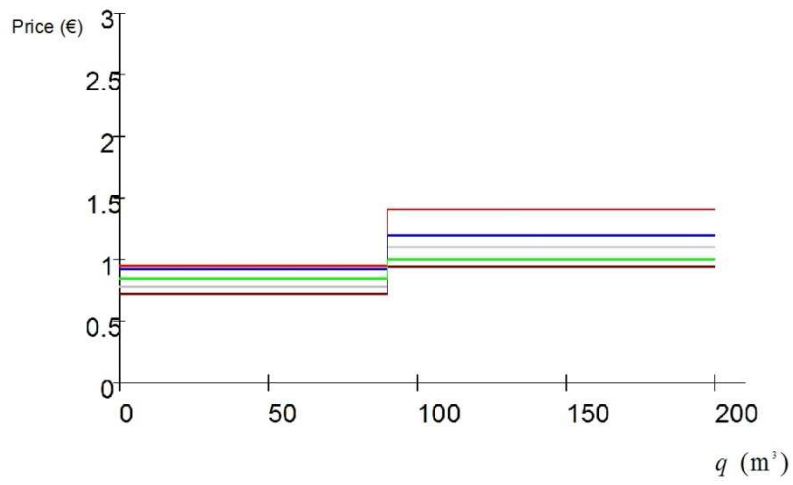


Figure 1-b : IBTs with three-tier structure

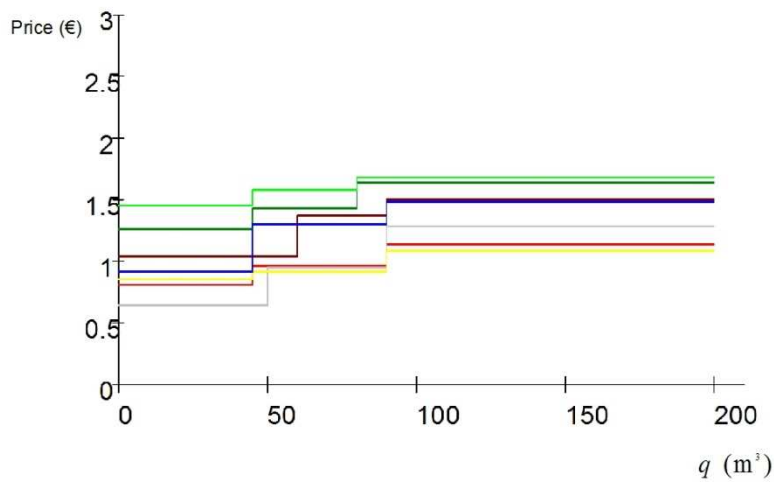
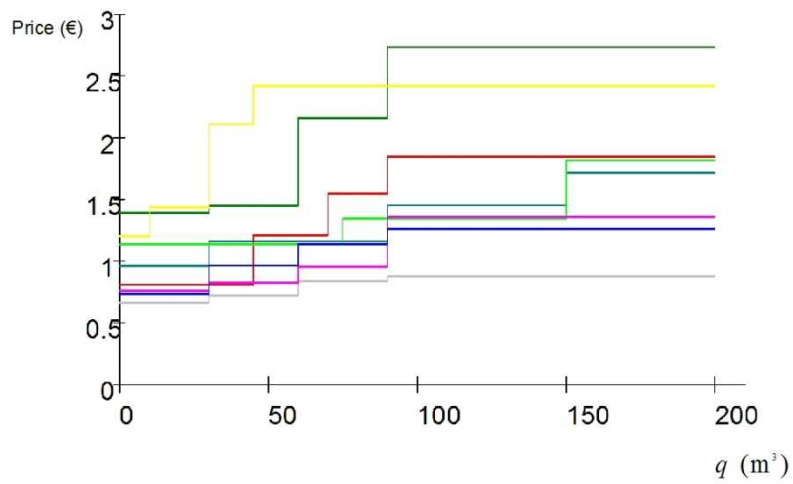


Figure 1-c : IBTs with four-tier structure



Figures 2 Bunching analysis

Figure 2-a : bunching analysis – Saint Pierre

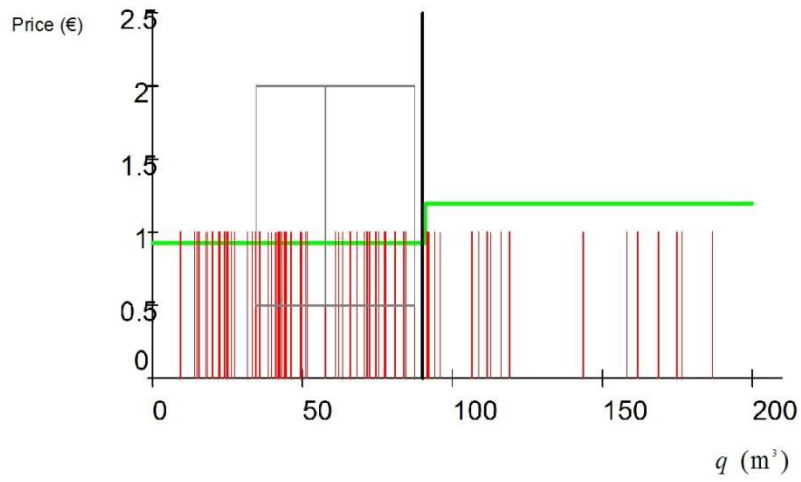


Figure 2-b : bunching analysis – Saint Denis

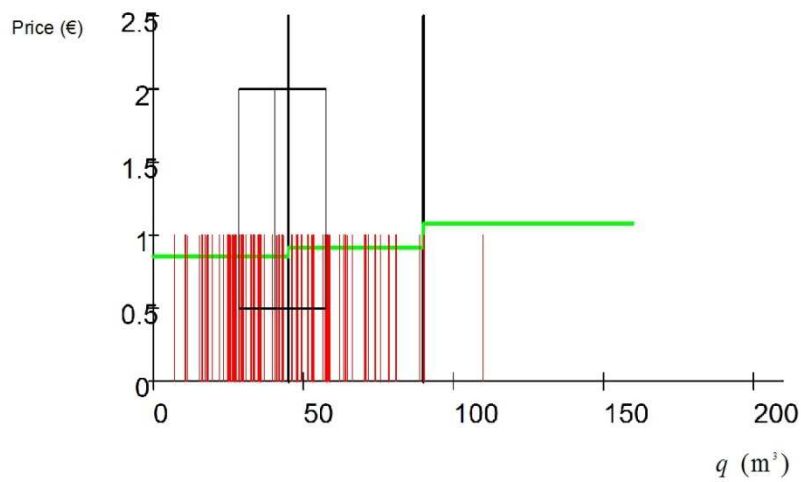


Figure 2-c : bunching analysis – Saint Paul

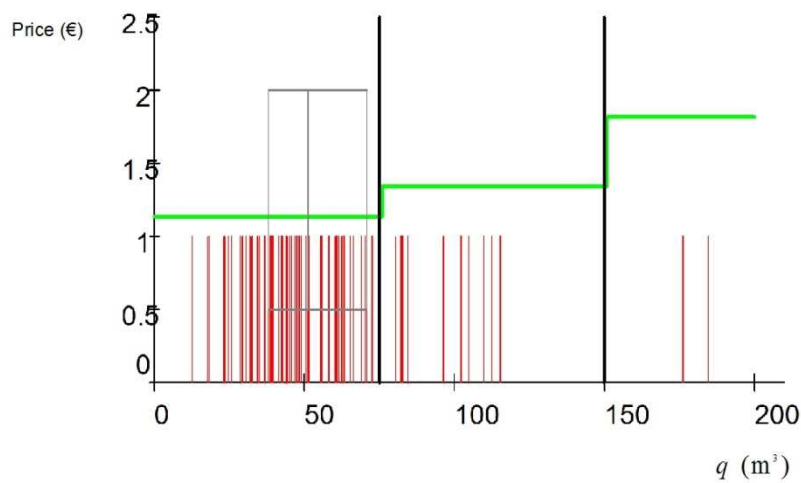


Table 1. Sample summary statistics of variables in model (12) (449 observations)

Variable	Unit	Mean	Minimum	Maximum	Standard-deviation
Water consumption per household	litres/day	675	120	5,204	56
Imputed income	€/month	2096	426	7374	1778
Fixed charges	€/quarter	7.79	2.41	26.80	4.71
Nordin's D	€/quarter	16.27	0	262.44	32.35
Marginal price	€/m ³	0.87	0.13	2.40	0.37
Average price (without fixed charges)	€/m ³	0.67	0.10	1.84	0.32
Share of non rainy days	Rate	0.67	0.10	1	0.20
Number of non-working adults	Integer	1.29	0	5	1.07
Number of working adults	Integer	0.98	0	3	0.89
Number of children	Integer	0.91	0	4	1.08
Swimming-pool	1=equipped, 0=not	0.093	0	1	0.29
Garden	1=equipped, 0=not	0.78	0	1	0.41

Table 2. Optimal GMM estimates of water demand model (12)

Model parameters ^a and test statistics	<i>Model specification</i>			
	I	II	III	IV
Intercept (a_0)	-1.82 (-1.19)	-2.34 (-3.84)***	-2.56 (-4.57)***	-1.29 (-2.15)**
Perceived price elasticity (a_1)	-0.36*** (-3.26)	-0.26 (-2.22)**	-0.31 (-2.88)***	-0.34 (-2.37)**
Income elasticity (a_2)	0.29 (0.75)	0.19 (1.23)	0.25 (1.81)*	-0.031 (-0.19)
Household size elasticity (a_3)		0.47 (8.045)***	0.48 (7.98)***	0.43 (5.06)***
Impact rate of non-working adult share (a_4)		0.39 (2.52)***	0.44 (2.99)***	0
Impact level of garden (a_5)		0.15 (1.20)	0	0
Impact level of swimming-pool (a_6)		0.14 (1.93)**	0.12 (1.73)*	0
Impact rate of non rainy day share (a_7)		0.25 (1.55)	0.37 (2.79)***	0.64 (4.49)***
Perception price parameter (k)	1.64 (2.49)	1.71 (2.36)**	1.50 (2.79)***	1.51 (2.98)***
t-test statistic for $H_0: k=1$	0.97	0.98	0.93	1.0009
OIR-test statistic (p-value)	6.01 (0.11)	3.58 (0.46)	2.56 (0.63)	1.78 (0.77)
Adjusted R ²	0.026	0.19	0.16	0.21
Number of observations	449	449	449	248

^a Figures in brackets are t-statistics of parameter estimates.

Significance level for parameter estimates: *** for 1%, ** for 5% and * for 10%.