

ADDITIONAL MATERIALS

(Online Appendixes)

Appendix 1: Data construction

The raw occupancy data include breakdown periods during which the system crashed. In such events, all computers had to be restarted, and the hourly occupancy average shows a sudden drop. Using an additional dataset on downtime periods, we removed all corresponding observations. Because of implementation constraints, the store had to use step functions instead of continuous functions. On average, there are 30 steps per curve, with a minimum of 15. We compute linear approximations of the pricing curves by regressing the price at each step on the occupancy rate at the midpoint. Steps that are never reached during the regime have been excluded from the regression.

In all but three regimes, a linear approximation of the pricing curve explains more than 95 percent of the variation (the R^2 in Table 1 is higher than 0.95). In regimes 7, 8 and 9 the R^2 is between 0.75 and 0.87. These regimes are piecewise linear, with a kink at 60 percent. However, these nonlinearities do not affect our results

The magnitude of price variability in our sample is in line with other studies. The expected absolute difference for two hours selected at random in our sample is 30 percent of the average price. Studying price dispersion in the US airline industry, Borenstein and Rose (1994) found that the expected absolute difference in fares between two passengers for a given carrier and route is 36 percent of the mean fare. The mean absolute deviation from the average price in the sample is 0.27 of the average price. For comparison, in their survey of consumer attitude

toward pricing, Kahneman et al. (1986) used a 33 percent increase in price due to a positive demand shock.¹

The estimated coefficients in (2) minimize the absolute weighted difference between the observed occupancy rates in regime r , $q_{i,r}$, and the occupancy percentile $q'_j(r)$:

$$\min_{\{b_{0,j}, b_{r,j}\}} \sum_{r=1 \dots 11} \sum_{i=1 \dots i_r} (q_{i,r} - q'_j(r)) [j - I(q_{i,r} - q'_j(r) \leq 0)]$$

where $I(\cdot)$ is the indicator function and $q'_j(r)$ is defined in (2). Each deviation $q_{i,r} - q'_j(r)$ is weighted differently according to its sign and the quantile being estimated. We use the linear programming algorithm of Armstrong et al. (1979) to solve the minimization problem and we obtain the variance-covariance matrix of the estimators following the bootstrap resampling procedure described in Rogers (1992). In Section 4.2, we solve the analogous minimization problem

$$\min_{\{a_{0,j}, a_{1,j}, a_{2,j}\}} \sum_{i=1 \dots 2312} (q_i - q'_j(P_0, \beta | Q_0)) [j - I(q_i - q'_j(P_0, \beta | Q_0) \leq 0)]$$

where q_i denotes hourly observations of the occupancy rate in the store.

¹ The mean absolute difference is $\sum_{j=1}^{2,312} \sum_{i=1}^{2,312} |p_i - p_j| / n^2$, while the mean absolute deviation is $\sum_{i=1}^{2,312} |p_i - \bar{p}| / n$, where p_i denotes hourly price observations ($p_i = p(q_i)$) and \bar{p} the average price.

Table 1. Summary Statistics (long version)

Regime	Number of observations	Length of the regime (days)	Responsiveness (R^2)	Mean occupancy rate	S.d. occupancy rate	Mean Price	S.d. Price
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	85	6	10.733 (0.99)	0.618	0.160	9.616	1.757
2	110	7	12.235 (0.99)	0.596	0.149	10.773	1.794
3	221	15	15.098 (0.99)	0.600	0.150	12.085	2.320
4	208	15	15.141 (0.99)	0.578	0.159	12.344	2.518
5	183	11	16.090 (0.95)	0.550	0.171	12.906	2.747
6	224	16	15.536 (0.96)	0.539	0.159	13.642	2.463
7	444	28	12.670 (0.75)	0.492	0.161	14.477	2.887
8	342	22	14.082 (0.83)	0.501	0.165	15.419	3.010
9	196	13	17.272 (0.87)	0.516	0.148	15.176	3.168
10	94	6	33.722 (0.96)	0.513	0.152	17.519	5.151
11	112	7	32.782 (0.95)	0.509	0.154	18.306	5.189
12	93	6	41.879 (0.99)	0.461	0.131	18.714	5.492
All Regimes	2,312	12.667	17.112	0.533	0.163	14.174	3.808

Note: The responsiveness of each pricing regime is measured by the slope of the pricing curve; the slope is estimated by regressing (OLS) the price in each step on the occupancy rate at the midpoint of each step (the R^2 is reported in parentheses); in estimating the slope of the pricing curves we do not consider occupancy levels that are not reached in the sample. "S.d. occupancy rate" and "s.d. price" are the standard deviation of the occupancy rate observed and the price. The table includes observations for hours between 8 am and 12 midnight.

Appendix 2: Robustness Checks

Table A1. Tests for Equality of Variance of Price (F-tests)

Regime	1	2	3	4	5	6	7	8	9	10	11
	0.96										
2	(0.85)										
	0.57	0.60									
3	(0.00)	(0.00)									
	0.49	0.51	0.85								
4	(0.00)	(0.00)	(0.23)								
	0.41	0.43	0.71	0.84							
5	(0.00)	(0.00)	(0.02)	(0.22)							
	0.51	0.53	0.89	1.04	1.24						
6	(0.00)	(0.00)	(0.37)	(0.75)	(0.12)						
	0.37	0.39	0.65	0.76	0.91	0.73					
7	(0.00)	(0.00)	(0.00)	(0.02)	(0.43)	(0.01)					
	0.34	0.36	0.59	0.70	0.83	0.67	0.92				
8	(0.00)	(0.00)	(0.00)	(0.00)	(0.16)	(0.00)	(0.41)				
	0.31	0.32	0.54	0.63	0.75	0.60	0.83	0.90			
9	(0.00)	(0.00)	(0.00)	(0.00)	(0.05)	(0.00)	(0.12)	(0.41)			
	0.12	0.12	0.20	0.24	0.28	0.23	0.31	0.34	0.38		
10	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)		
	0.11	0.12	0.20	0.24	0.28	0.23	0.31	0.34	0.37	0.99	
11	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.95)	
	0.10	0.11	0.18	0.21	0.25	0.20	0.28	0.30	0.33	0.88	0.89
12	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.54)	(0.56)

Note: The table reports the test for equality of variance across pairs of regimes. The test is the ratio of the variance of price for the column regime and the row regime. The degrees of freedom (N_1-1 , N_2-1) can be computed for each test using the number of observations for each regime in Table 1. P-values are reported in parenthesis.

**Table A2. The impact of regimes on quantiles of the occupancy distribution
(extended version of Table 2 in the paper)**

	Occupancy Rate (%)				
	Quantile 0.05	Quantile 0.10	Quantile 0.20	Quantile 0.30	Quantile 0.40
Regime 2	2.610 (6.652)	2.340 (10.023)	-2.270 (8.378)	-5.690 (4.710)	-5.140 (2.382)**
Regime 3	3.300 (5.424)	4.620 (9.318)	-1.000 (6.651)	-6.250 (3.449)*	-5.390 (2.279)**
Regime 4	1.610 (4.980)	-1.720 (9.145)	-6.640 (6.874)	-9.830 (2.707)***	-9.390 (1.565)***
Regime 5	-3.060 (4.855)	-5.770 (8.002)	-11.580 (6.361)*	-13.020 (2.524)***	-12.370 (1.873)***
Regime 6	-0.560 (5.257)	-3.750 (9.072)	-12.610 (7.100)*	-14.000 (3.185)***	-12.840 (2.129)***
Regime 7	-9.110 (5.100)*	-10.860 (8.355)	-15.500 (6.674)**	-17.330 (2.616)***	-15.700 (1.706)***
Regime 8	-8.060 (5.570)	-11.160 (8.313)	-15.110 (7.419)**	-18.020 (3.181)***	-14.810 (1.602)***
Regime 9	-3.890 (5.286)	-7.000 (8.621)	-11.160 (7.280)	-14.910 (3.100)***	-13.670 (2.473)***
Regime 10	-4.340 (5.950)	-5.770 (8.032)	-12.190 (6.629)*	-16.550 (3.079)***	-14.200 (3.201)***
Regime 11	-4.480 (5.285)	-6.440 (8.387)	-14.970 (7.683)*	-17.770 (3.615)***	-16.060 (3.263)***
Regime 12	-2.200 (5.733)	-6.660 (8.708)	-16.000 (8.468)*	-21.440 (3.700)***	-22.090 (2.431)***
Constant	24.920 (5.090)***	32.440 (8.459)***	51.080 (6.528)***	61.580 (2.447)***	65.060 (1.503)***

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Table A2. (continued) The impact of regimes on quantiles of the occupancy distribution (extended version of Table 2 in the paper)

	Quantile 0.50	Quantile 0.60	Quantile 0.70	Quantile 0.80	Quantile 0.90
Regime 2	-5.530 (2.559)**	-3.500 (1.981)*	-2.330 (1.279)*	-0.280 (1.283)	-0.220 (1.801)
Regime 3	-5.720 (1.710)***	-5.330 (1.197)***	-3.280 (1.697)*	1.410 (1.082)	1.670 (1.372)
Regime 4	-8.610 (1.823)***	-6.470 (1.192)***	-3.190 (1.458)**	0.250 (1.463)	1.920 (1.105)*
Regime 5	-10.170 (2.188)***	-9.250 (1.382)***	-5.500 (1.439)***	-1.980 (1.096)*	0.140 (1.708)
Regime 6	-11.390 (1.802)***	-10.360 (1.544)***	-7.970 (1.384)***	-5.670 (2.052)***	-1.390 (2.114)
Regime 7	-15.470 (1.573)***	-13.550 (1.086)***	-12.580 (0.961)***	-10.640 (1.078)***	-8.360 (1.333)***
Regime 8	-13.970 (1.652)***	-12.000 (1.085)***	-11.190 (1.365)***	-7.920 (1.297)***	-6.890 (1.315)***
Regime 9	-12.050 (2.328)***	-12.050 (1.389)***	-10.640 (1.698)***	-9.140 (1.587)***	-7.280 (1.418)***
Regime 10	-14.830 (2.586)***	-12.750 (2.577)***	-10.530 (1.984)***	-7.530 (1.443)***	-6.750 (2.365)***
Regime 11	-14.750 (3.373)***	-11.770 (2.514)***	-9.910 (1.662)***	-7.890 (1.499)***	-6.720 (1.731)***
Regime 12	-20.640 (2.549)***	-19.020 (2.335)***	-16.780 (1.238)***	-14.950 (2.579)***	-12.610 (1.587)***
constant	67.860 (1.488)***	69.940 (1.007)***	71.720 (0.750)***	72.920 (0.895)***	75.470 (1.207)***

Note: The table is an extended version of Table 2 in the paper. The table reports the LAD quantile regression coefficients of model (2), for the 5th percentile and the 9 deciles of the occupancy distribution. The independent variables are regime specific indicator variables (regime 1 omitted). Bootstrap standard errors (with 20 replications) are reported in parentheses. The number of observations is 2,312.

* Significant at the 10 percent level.

** Significant at the 5 percent level.

*** Significant at the 1 percent level.

Table A3. Test of equality of quantiles between pairs of regimes with the highest differences in responsiveness. (extended version of Table 3 in the paper)

	Pairs of regimes to be compared							
	2 and 12	3 and 13	4 and 12	5 and 12	6 and 12	7 and 12	8 and 12	9 and 12
Quantile 0.05								
F(1, 2300) =	2.41	3.41	1.66	0.07	0.24	6.50	4.25	0.38
P-value	0.12	0.06	0.20	0.80	0.63	0.01	0.04	0.54
Quantile 0.10								
F(1, 2300) =	2.30	3.53	2.24	0.37	0.92	0.18	0.07	0.26
P-value	0.13	0.06	0.13	0.54	0.34	0.67	0.80	0.61
Quantile 0.20								
F(1, 2300) =	8.82	8.22	5.09	2.63	3.80	0.85	0.98	2.85
P-value	0.00	0.00	0.02	0.11	0.05	0.36	0.32	0.09
Quantile 0.30								
F(1, 2300) =	39.62	30.39	19.90	12.32	16.84	6.22	7.02	13.53
P-value	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00
Quantile 0.40								
F(1, 2300) =	57.52	49.70	27.49	16.11	23.71	9.80	10.10	22.04
P-value	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Quantile 0.50								
F(1, 2300) =	50.45	37.04	22.13	12.94	18.37	7.04	7.12	16.07
P-value	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00
Quantile 0.60								
F(1, 2300) =	48.14	32.09	19.20	10.87	15.72	5.15	5.40	13.00
P-value	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.00
Quantile 0.70								
F(1, 2300) =	28.49	24.81	16.02	8.54	12.20	3.24	3.42	9.36
P-value	0.00	0.00	0.00	0.00	0.00	0.07	0.06	0.00
Quantile 0.80								
F(1, 2300) =	16.60	14.07	9.61	4.89	7.03	1.34	1.59	4.72
P-value	0.00	0.00	0.00	0.03	0.01	0.25	0.21	0.03
Quantile 0.90								
F(1, 2300) =	17.79	17.01	10.65	4.55	7.15	0.74	0.98	4.48
P-value	0.00	0.00	0.00	0.03	0.01	0.39	0.32	0.03

Note: the table reports the F-test and P-value for the equality of the 5th percentile and the 9 deciles of the occupancy distribution for pairs of regimes. The tests are based on the estimates in Table A2. The table does not report the F-tests for the pairs of regimes (1, 12) and (1, 11) because such a comparison can be made using the results in Table 2.

Table A4. The impact of the responsiveness of the pricing function on occupancy distribution ($Q_0=0.2$)

	Quantile 0.1	Quantile 0.3	Quantile 0.5	Quantile 0.7	Quantile 0.9
	(1)	(2)	(3)	(4)	(5)
Responsiveness b	-0.401 (0.071)***	-0.337 (0.043)***	-0.400 (0.042)***	-0.344 (0.070)**	-0.148 (0.031)***
P0	-2.317 (0.133)***	-1.896 (0.269)***	-1.902 (0.337)***	-2.216 (0.155)***	-1.903 (0.150)***
Constant	79.426 (3.145)***	73.729 (1.653)***	85.319 (3.718)***	93.711 (1.528)***	49.379 (1.501)***

NOTE: The dependent variable is the quantile q_y of the occupancy rate distribution (%), $y=0.1, 0.3, 0.5, 0.7, 0.9$. Responsiveness is the slope of the pricing curve in each regime; $Q_0=0.2$. The number of observations in the sample is 2,312. Bootstrap standard errors are reported in parentheses.

* Significant at the 10 percent level.

** Significant at the 5 percent level.

*** Significant at the 1 percent level.

Table A5. The impact of the responsiveness of the pricing function on occupancy distribution ($Q_0=0.12$)

	Quantile 0.1	Quantile 0.3	Quantile 0.5	Quantile 0.7	Quantile 0.9
	(1)	(2)	(3)	(4)	(5)
Responsiveness b	-0.334 (0.100)***	-0.578 (0.070)***	-0.553 (0.065)***	-0.489 (0.052)***	-0.496 (0.032)***
P0	-2.317 (0.452)***	-2.216 (0.281)***	-1.903 (0.157)***	-1.896 (0.104)***	-1.902 (0.117)***
Constant	49.379 (4.783)***	73.729 (2.898)***	79.426 (1.961)***	85.319 (1.394)***	93.711 (1.326)***

NOTE: The dependent variable is the quantile q_y of the occupancy rate distribution (%), $y=0.1, 0.3, 0.5, 0.7, 0.9$. Responsiveness is the slope of the pricing curve in each regime; $Q_0=0.12$. The number of observations in the sample is 2312. Bootstrap standard errors are reported in parentheses.

* Significant at the 10 percent level.

** Significant at the 5 percent level.

*** Significant at the 1 percent level.

Table A6. The impact of responsiveness of the pricing function on the quantiles of the conditional occupancy distribution ($Q_0=0.2$)

	Occupancy Distribution				
	Quantile 0.1	Quantile 0.3	Quantile 0.5	Quantile 0.7	Quantile 0.9
Responsiveness * h8	-0.055 (0.080)	-0.064 (0.056)	-0.134 (0.048)***	-0.146 (0.061)**	-0.166 (0.063)***
Responsiveness * h9	-0.065 (0.068)	-0.089 (0.062)	-0.134 (0.027)***	-0.224 (0.046)***	-0.281 (0.053)***
Responsiveness * h10	-0.320 (0.093)***	-0.247 (0.041)***	-0.265 (0.056)***	-0.355 (0.041)***	-0.409 (0.054)***
Responsiveness * h11	-0.256 (0.060)***	-0.383 (0.039)***	-0.450 (0.026)***	-0.478 (0.046)***	-0.547 (0.053)***
Responsiveness * h12	-0.383 (0.045)***	-0.391 (0.041)***	-0.454 (0.044)***	-0.493 (0.050)***	-0.530 (0.093)***
Responsiveness * h13	-0.357 (0.078)***	-0.410 (0.066)***	-0.436 (0.040)***	-0.549 (0.044)***	-0.550 (0.076)***
Responsiveness * h14	-0.374 (0.083)***	-0.445 (0.089)***	-0.570 (0.060)***	-0.566 (0.059)***	-0.595 (0.076)***
Responsiveness * h15	-0.367 (0.097)***	-0.472 (0.085)***	-0.523 (0.086)***	-0.458 (0.089)***	-0.500 (0.071)***
Responsiveness * h16	-0.366 (0.104)***	-0.281 (0.096)***	-0.333 (0.043)***	-0.347 (0.064)***	-0.225 (0.112)**
Responsiveness * h17	-0.172 (0.044)***	-0.300 (0.054)***	-0.307 (0.074)***	-0.312 (0.099)***	-0.334 (0.069)***
Responsiveness * h18	-0.168 (0.085)**	-0.184 (0.053)***	-0.274 (0.061)***	-0.262 (0.068)***	-0.279 (0.060)***
Responsiveness * h19	-0.241 (0.046)***	-0.301 (0.073)***	-0.236 (0.053)***	-0.267 (0.037)***	-0.320 (0.197)
Responsiveness * h20	-0.191 (0.100)*	-0.178 (0.070)*	-0.194 (0.052)***	-0.239 (0.057)***	-0.203 (0.086)**
Responsiveness * h21	-0.225 (0.071)***	-0.299 (0.068)***	-0.290 (0.090)***	-0.248 (0.051)***	-0.234 (0.097)**
Responsiveness * h22	-0.216 (0.108)**	-0.303 (0.056)***	-0.361 (0.057)***	-0.367 (0.095)***	-0.358 (0.103)***
Responsiveness * h23	-0.283 (0.075)***	-0.297 (0.058)***	-0.373 (0.034)***	-0.482 (0.057)***	-0.698 (0.027)***
P ₀ * hour interactions?	Yes	Yes	Yes	Yes	Yes
Hour fixed effects?	Yes	Yes	Yes	Yes	Yes
Day fixed effects?	Yes	Yes	Yes	Yes	Yes
Weekend cycle?	Yes	Yes	Yes	Yes	Yes
Holiday fixed effects?	Yes	Yes	Yes	Yes	Yes

Note: The dependent variable is the quantile q_y of the occupancy rate distribution (%), $y=0.1, 0.3, 0.5, 0.7, 0.9$. Responsiveness is the slope of the pricing curve in each regime. The coefficients for the level of the pricing function (with hour interactions), hour of day, day of the week, holiday periods, and weekend cycle are not reported in the table. The number of observations in the sample is 2,312. Bootstrap standard errors are reported in parentheses.

* Significant at the 10 percent level.

** Significant at the 5 percent level.

*** Significant at the 1 percent level.

Table A7. The impact of responsiveness of the pricing function on the quantiles of the conditional occupancy distribution ($Q_0=0.12$)

	Occupancy Distribution				
	Quantile 0.1	Quantile 0.3	Quantile 0.5	Quantile 0.7	Quantile 0.9
Responsiveness * h8	-0.183 (0.091)**	-0.213 (0.056)***	-0.310 (0.050)***	-0.336 (0.071)***	-0.338 (0.069)***
Responsiveness * h9	-0.202 (0.107)*	-0.262 (0.090)***	-0.333 (0.055)***	-0.424 (0.064)***	-0.480 (0.046)***
Responsiveness * h10	-0.522 (0.066)***	-0.461 (0.044)***	-0.470 (0.053)***	-0.568 (0.039)***	-0.630 (0.062)***
Responsiveness * h11	-0.463 (0.125)***	-0.628 (0.070)***	-0.673 (0.049)***	-0.697 (0.071)***	-0.748 (0.070)***
Responsiveness * h12	-0.600 (0.042)***	-0.596 (0.049)***	-0.644 (0.040)***	-0.667 (0.043)***	-0.665 (0.096)***
Responsiveness * h13	-0.513 (0.068)***	-0.588 (0.067)***	-0.607 (0.047)***	-0.719 (0.042)***	-0.706 (0.162)***
Responsiveness * h14	-0.542 (0.082)***	-0.612 (0.071)***	-0.772 (0.087)***	-0.766 (0.080)***	-0.754 (0.109)***
Responsiveness * h15	-0.515 (0.122)***	-0.651 (0.081)***	-0.711 (0.089)***	-0.625 (0.124)***	-0.641 (0.088)***
Responsiveness * h16	-0.500 (0.104)***	-0.428 (0.109)***	-0.476 (0.086)***	-0.493 (0.069)***	-0.332 (0.101)***
Responsiveness * h17	-0.349 (0.147)**	-0.438 (0.081)***	-0.441 (0.061)***	-0.457 (0.097)***	-0.472 (0.068)***
Responsiveness * h18	-0.304 (0.036)***	-0.326 (0.039)***	-0.424 (0.036)***	-0.403 (0.073)***	-0.424 (0.073)***
Responsiveness * h19	-0.357 (0.085)***	-0.444 (0.081)***	-0.397 (0.071)***	-0.449 (0.068)***	-0.476 (0.183)***
Responsiveness * h20	-0.312 (0.119)***	-0.318 (0.094)***	-0.323 (0.061)***	-0.388 (0.079)***	-0.336 (0.114)***
Responsiveness * h21	-0.321 (0.108)***	-0.442 (0.084)***	-0.419 (0.099)***	-0.380 (0.087)***	-0.388 (0.133)***
Responsiveness * h22	-0.335 (0.095)***	-0.438 (0.060)***	-0.498 (0.050)***	-0.505 (0.067)***	-0.496 (0.119)***
Responsiveness * h23	-0.401 (0.118)***	-0.427 (0.086)***	-0.510 (0.106)***	-0.646 (0.113)***	-0.914 (0.046)***
P_0 * hour interactions?	Yes	Yes	Yes	Yes	Yes
Hour fixed effects?	Yes	Yes	Yes	Yes	Yes
Day fixed effects?	Yes	Yes	Yes	Yes	Yes
Weekend cycle?	Yes	Yes	Yes	Yes	Yes
Holiday fixed effects?	Yes	Yes	Yes	Yes	Yes

Note: The dependent variable is the quantile q_y of the occupancy rate distribution (%), $y=0.1, 0.3, 0.5, 0.7, 0.9$. Responsiveness is the slope of the pricing curve in each regime. The coefficients for the level of the pricing function (with hour interactions), hour of day, day of the week, holiday periods, and weekend cycle are not reported in the table. The number of observations in the sample is 2,312. Bootstrap standard errors are reported in parentheses.

* Significant at the 10 percent level.

** Significant at the 5 percent level.

*** Significant at the 1 percent level.

Table A8. The impact of the responsiveness of the pricing function on occupancy distribution (including time trend)

	Quantile 0.1	Quantile 0.3	Quantile 0.5	Quantile 0.7	Quantile 0.9
	(1)	(2)	(3)	(4)	(5)
Responsiveness b	0.106 (0.178)	-0.246 (0.091)***	-0.396 (0.049)***	-0.241 (0.083)***	-0.131 (0.051)**
P0	-1.739 (1.228)	-2.359 (0.567)***	-2.615 (0.296)***	-2.104 (0.302)***	-1.506 (0.282)***
Time trend (day)	-0.031 (0.057)	0.008 (0.032)	0.048 (0.017)***	0.015 (0.021)	-0.023 (0.017)
Constant	44.956 (6.771)***	74.967 (4.890)***	85.480 (2.993)***	87.130 (3.022)***	90.454 (2.672)***

NOTE: The dependent variable is the quantile q_y of the occupancy rate distribution (%), $y=0.1, 0.3, 0.5, 0.7, 0.9$. Responsiveness is the slope of the pricing curve in each regime; $Q_0=0.28$. Time trend is defined in days. The number of observations in the sample is 2,312. Bootstrap standard errors (with 20 replications) are reported in parentheses.

* Significant at the 10 percent level.

** Significant at the 5 percent level.

*** Significant at the 1 percent level.

Table A9. The impact of the responsiveness of the pricing function on occupancy distribution (including quadratic time trend)

	Quantile 0.1	Quantile 0.3	Quantile 0.5	Quantile 0.7	Quantile 0.9
	(1)	(2)	(3)	(4)	(5)
Responsiveness b	0.073 (0.165)	-0.323 (0.128)**	-0.457 (0.090)***	-0.239 (0.085)***	-0.068 (0.047)
P0	-1.108 (1.035)	-0.931 (0.988)	-1.856 (0.561)***	-2.020 (0.502)***	-2.347 (0.427)***
Time trend (day)	-0.159 (0.166)	-0.244 (0.126)*	-0.113 (0.081)	0.002 (0.074)	0.159 (0.066)**
Time trend ² (day ²)	0.001 (0.001)	0.001 (0.001)**	0.001 (0.000)**	0.000 (0.000)	-0.001 (0.000)***
Constant	43.572 (8.065)***	71.234 (6.454)***	84.320 (3.931)***	86.726 (3.109)***	91.563 (2.254)***

NOTE: The dependent variable is the quantile q_y of the occupancy rate distribution (%), $y=0.1, 0.3, 0.5, 0.7, 0.9$. Responsiveness is the slope of the pricing curve in each regime; $Q_0=0.28$. Time trend is defined in days. The number of observations in the sample is 2,312. Bootstrap standard errors (with 20 replications) are reported in parentheses.

* Significant at the 10 percent level.

** Significant at the 5 percent level.

*** Significant at the 1 percent level.

Table A10. The impact of responsiveness of the pricing function on the quantiles of the conditional occupancy distribution ($Q_0=0.28$; including time trend)

	Occupancy Distribution				
	Quantile 0.1	Quantile 0.3	Quantile 0.5	Quantile 0.7	Quantile 0.9
Responsiveness * h8	0.033 (0.097)	0.104 (0.037)***	0.018 (0.064)	0.044 (0.071)	0.066 (0.066)
Responsiveness * h9	0.034 (0.083)	0.101 (0.054)*	0.041 (0.032)	-0.026 (0.041)	-0.026 (0.054)
Responsiveness * h10	-0.151 (0.107)	-0.009 (0.058)	-0.080 (0.050)	-0.148 (0.046)***	-0.121 (0.042)***
Responsiveness * h11	-0.076 (0.094)	-0.117 (0.061)*	-0.249 (0.068)***	-0.263 (0.049)***	-0.278 (0.052)***
Responsiveness * h12	-0.194 (0.074)***	-0.165 (0.049)***	-0.285 (0.045)***	-0.324 (0.067)***	-0.332 (0.079)***
Responsiveness * h13	-0.247 (0.088)***	-0.210 (0.047)***	-0.285 (0.047)***	-0.383 (0.054)***	-0.332 (0.143)**
Responsiveness * h14	-0.235 (0.106)**	-0.270 (0.070)***	-0.386 (0.068)***	-0.368 (0.065)***	-0.367 (0.059)***
Responsiveness * h15	-0.246 (0.073)***	-0.273 (0.074)***	-0.366 (0.067)***	-0.294 (0.103)***	-0.259 (0.097)***
Responsiveness * h16	-0.274 (0.119)**	-0.115 (0.090)	-0.199 (0.064)***	-0.204 (0.059)***	-0.010 (0.107)
Responsiveness * h17	-0.032 (0.081)	-0.150 (0.036)***	-0.195 (0.064)***	-0.171 (0.082)**	-0.088 (0.068)
Responsiveness * h18	-0.075 (0.097)	-0.026 (0.047)	-0.135 (0.038)***	-0.125 (0.091)	-0.084 (0.113)
Responsiveness * h19	-0.136 (0.067)**	-0.145 (0.090)	-0.104 (0.074)	-0.088 (0.055)	-0.079 (0.176)
Responsiveness * h20	-0.101 (0.124)	-0.022 (0.070)	-0.068 (0.050)	-0.094 (0.070)	0.004 (0.094)
Responsiveness * h21	-0.153 (0.095)	-0.131 (0.060)**	-0.179 (0.088)**	-0.121 (0.098)	0.010 (0.110)
Responsiveness * h22	-0.118 (0.109)	-0.147 (0.050)***	-0.243 (0.064)***	-0.233 (0.087)***	-0.141 (0.128)
Responsiveness * h23	-0.191 (0.087)**	-0.152 (0.063)**	-0.264 (0.058)***	-0.322 (0.077)***	-0.424 (0.043)***
Time trend (days)	0.010 (0.016)	-0.007 (0.008)	0.007 (0.008)	0.001 (0.009)	-0.025 (0.011)**
P ₀ * hour interactions?	Yes	Yes	Yes	Yes	Yes
Hour fixed effects?	Yes	Yes	Yes	Yes	Yes
Day fixed effects?	Yes	Yes	Yes	Yes	Yes
Weekend cycle?	Yes	Yes	Yes	Yes	Yes
Holiday fixed effects?	Yes	Yes	Yes	Yes	Yes

Note: The dependent variable is the quantile q_y of the occupancy rate distribution (%), $y=0.1, 0.3, 0.5, 0.7, 0.9$. Responsiveness is the slope of the pricing curve in each regime. The coefficients for the level of the pricing function (with hour interactions), hour of day, day of the week, holiday periods, and weekend cycle are not reported in the table. The number of observations in the sample is 2,312. Bootstrap standard errors are reported in parentheses.

* Significant at the 10 percent level.

** Significant at the 5 percent level.

*** Significant at the 1 percent level.

Table A11. The impact of responsiveness of the pricing function on the quantiles of the conditional occupancy distribution ($Q_0=0.28$; quadratic time trend)

	Occupancy Distribution				
	Quantile 0.1	Quantile 0.3	Quantile 0.5	Quantile 0.7	Quantile 0.9
Responsiveness * h8	0.084 (0.066)	0.069 (0.041)*	-0.003 (0.068)	0.015 (0.072)	0.037 (0.062)
Responsiveness * h9	0.002 (0.080)	0.057 (0.062)	0.049 (0.040)	-0.046 (0.036)	-0.051 (0.052)
Responsiveness * h10	-0.114 (0.106)	-0.012 (0.048)	-0.114 (0.043)***	-0.135 (0.049)***	-0.145 (0.046)***
Responsiveness * h11	-0.119 (0.070)*	-0.162 (0.055)***	-0.238 (0.073)***	-0.283 (0.086)***	-0.302 (0.076)***
Responsiveness * h12	-0.230 (0.047)***	-0.212 (0.044)***	-0.279 (0.056)***	-0.299 (0.043)***	-0.298 (0.103)***
Responsiveness * h13	-0.246 (0.084)***	-0.248 (0.045)***	-0.289 (0.054)***	-0.391 (0.050)***	-0.354 (0.203)*
Responsiveness * h14	-0.280 (0.091)***	-0.290 (0.086)***	-0.403 (0.072)***	-0.396 (0.055)***	-0.390 (0.081)***
Responsiveness * h15	-0.283 (0.089)***	-0.313 (0.130)**	-0.361 (0.126)***	-0.322 (0.099)***	-0.269 (0.074)***
Responsiveness * h16	-0.221 (0.099)**	-0.148 (0.095)	-0.204 (0.078)***	-0.192 (0.070)***	-0.012 (0.125)
Responsiveness * h17	-0.044 (0.120)	-0.189 (0.061)***	-0.222 (0.064)***	-0.160 (0.097)	-0.088 (0.089)
Responsiveness * h18	-0.049 (0.126)	-0.066 (0.043)	-0.155 (0.047)***	-0.133 (0.076)*	-0.106 (0.061)*
Responsiveness * h19	-0.191 (0.050)***	-0.140 (0.061)**	-0.127 (0.072)*	-0.060 (0.049)	-0.093 (0.154)
Responsiveness * h20	-0.129 (0.129)	-0.044 (0.082)	-0.114 (0.073)	-0.097 (0.055)*	0.010 (0.061)
Responsiveness * h21	-0.202 (0.098)**	-0.144 (0.084)*	-0.222 (0.111)**	-0.131 (0.132)	0.014 (0.116)
Responsiveness * h22	-0.151 (0.114)	-0.184 (0.051)***	-0.261 (0.054)***	-0.246 (0.090)***	-0.161 (0.108)
Responsiveness * h23	-0.225 (0.100)**	-0.176 (0.080)**	-0.282 (0.057)***	-0.321 (0.073)***	-0.416 (0.065)***
Time trend (days)	-0.107 (0.031)***	-0.079 (0.025)***	-0.061 (0.030)**	-0.073 (0.033)**	-0.114 (0.038)***
Time trend ² (days ²)	0.001 (0.000)***	0.000 (0.000)***	0.000 (0.000)***	0.000 (0.000)**	0.000 (0.000)**
P ₀ * hour interactions?	Yes	Yes	Yes	Yes	Yes
Hour fixed effects?	Yes	Yes	Yes	Yes	Yes
Day fixed effects?	Yes	Yes	Yes	Yes	Yes
Weekend cycle?	Yes	Yes	Yes	Yes	Yes
Holiday fixed effects?	Yes	Yes	Yes	Yes	Yes

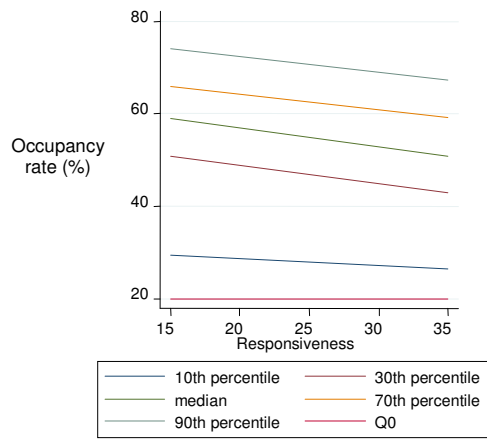
Note: The dependent variable is the quantile q_y of the occupancy rate distribution (%), $y=0.1, 0.3, 0.5, 0.7, 0.9$. Responsiveness is the slope of the pricing curve in each regime. The coefficients for the level of the pricing function (with hour interactions), hour of day, day of the week, holiday periods, and weekend cycle are not reported in the table. The number of observations in the sample is 2,312. Bootstrap standard errors are reported in parentheses.

* Significant at the 10 percent level.

** Significant at the 5 percent level.

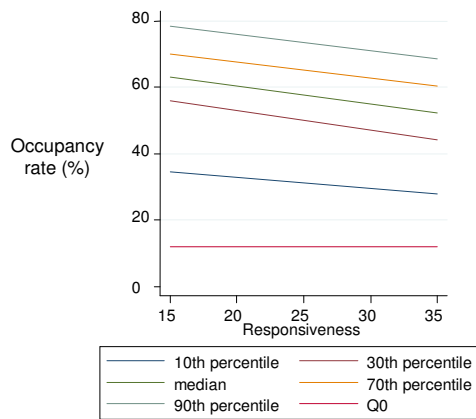
*** Significant at the 1 percent level.

Figure A1. Simulated Quantiles ($Q_0 = 0.2, P_0=7.6$)



Note: The occupancy rate is the hourly average number of computers used divided by the total number of computers in the store. Responsiveness is the slope of the pricing function. We set $P_0=7.6$, so that the pair (Q_0, P_0) corresponds to the intersection of the pricing functions in regimes 5 and 12.

Figure A2. Simulated Quantiles ($Q_0 = 0.12, P_0=4.2$)



Note: The occupancy rate is the hourly average number of computers used divided by the total number of computers in the store. Responsiveness is the slope of the pricing function. We set $P_0=4.2$, so that (Q_0, P_0) corresponds to the intersection of the pricing functions in regimes 1 and 12.