Appendix to

Who Thinks about the Competition?
Managerial ability and strategic entry in US local telephone markets

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Appendix 1: Constructing the Likelihood Function

In this appendix we outline the steps in constructing the simulated likelihood function we use for estimation:

1. Take R random draws from normal distribution $N(0, \sigma_\xi)$ for each market. Let R be 20. Let ξ_m^r denote a single draw r $(r = 1, 2, ..., R)$ for market m.

2. For each draw ξ_m^r and for each firm j at market m, construct $E(\overline{\Pi}_{jm}^r \mid k)$ iteratively from type 0 to K. For the first two types 0 and 1, we have:

$$E\left(\overline{\Pi}_{jm}^r \mid k = 0\right) = \beta_0 + \mathbf{X_m}\boldsymbol{\beta} + \xi_m^r \tag{A1.1}$$

$$E\left(\overline{\Pi}_{jm}^r \mid k = 1\right) = \beta_0 + \mathbf{X_m}\boldsymbol{\beta} + \psi \sum_{i=1,...,J_m}^{i \neq j} \Phi\left(\beta_0 + \mathbf{X_m}\boldsymbol{\beta} + \xi_m^r\right) + \xi_m^r \tag{A1.2}$$

For a type k $(k \geq 2)$ player, let $\Pr(l \mid \tau_i, k-1)$ denote her perceived probability of competitor i being type l, $l \leq k-1$. According to the truncated Poisson distribution $Poisson(\tau_i, k-1)$, we can derive: $\Pr(l \mid \tau_i, k-1) = \dfrac{\tau_i^l e^{-\tau_i} / l!}{\sum_{h=0}^{k-1} \tau_i^h e^{-\tau_i} / h!}$. For $k \geq 2$, we have:

$$E\left(\overline{\Pi}_{jm}^r \mid k\right) = \beta_0 + \mathbf{X_m}\boldsymbol{\beta} + \psi \sum_{i=1,...,J_m}^{i \neq j} \Phi\left\{ \sum_{l=0}^{k-1} \left[E\left(\overline{\Pi}_{jm}^r \mid l\right) \times \Pr(l \mid \tau_i, k-1) \right] \right\} + \xi_m^r \tag{A1.3}$$

In (A1.3), we need to use $E\left(\overline{\Pi}_{jm}^r \mid k\right)$, $(k = 0, 1 ..., k-1)$ from the iterative process.

3. With $E\left(\overline{\Pi}_{jm}^r \mid k\right)$, we can write: $\Pr\left(D_{jm}^r = 1 \mid k\right) = \Phi\left(E\left(\overline{\Pi}_{jm}^r \mid k\right)\right)$.

4. Construct entry probability of firm j unconditional on types. We know a firm's type is drawn from $Poisson(\tau_j)$ with no truncation, where $\tau_j = \exp(\gamma_0 + \mathbf{Z_j}\boldsymbol{\gamma})$. Let $\Pr(k \mid \tau_j)$ denote the true probability of firm j being type k. We then have:

$$prob\left(D_{jm}^r = 1\right) = \Phi\left\{ \sum_{k=0}^{K} \left[E\left(\overline{\Pi}_{jm}^r \mid k\right) \times \Pr(k \mid \tau_j) \right] \right\} \tag{A1.5}$$

5. Construct $prob\left(D_{jm}^r = 1\right)^{D_{jm}} prob\left(D_{jm}^r = 0\right)^{1-D_{jm}}$, where D_{jm} is a vector of actual entry decisions we observe in data and $prob\left(D_{jm}^r = 0\right) = 1 - prob\left(D_{jm}^r = 1\right)$.

6. Finally, with $prob\left(D_{jm}^r = 1\right)^{D_{jm}} prob\left(D_{jm}^r = 0\right)^{1-D_{jm}}$ we can construct equation (6) in the main text:

$$\ln L_{simulated} = \sum_{m=1,...,M} \ln\left\{ \frac{1}{R} \sum_{r=1}^{R} \left[\prod_{j=1}^{J_m} \left(prob\left(D_{jm}^r = 1\right)^{D_{jm}} prob\left(D_{jm}^r = 0\right)^{1-D_{jm}} \right) \right] \right\}$$

APPENDIX 2: TABLES AND FIGURE
Appendix Table 2.1: Table 2 with logit, probit, and additional interactions

		(1) Logit	(2) Probit	(3) Log(exp)× SAT 1400	(4) Log(exp)×SAT1400 Log(exp)×Econ/Bus
(1)	# of competitors × Log(experience)	-0.308 (0.090)***	-0.155 (0.046)***	-0.007 (0.002)***	-0.022 (0.009)**
(2)	# of competitors × Manager attended school with SAT score above 1400	-0.218 (0.055)***	-0.111 (0.030)***	0.010 (0.038)	0.020 (0.039)
(3)	# of competitors × Manager has degree in economics or business	-0.608 (0.291)**	-0.323 (0.154)**	-0.008 (0.004)**	-0.061 (0.030)**
(4)	# of competitors × Log(experience)× Manager has econ/business degree	0.221 (0.100)**	0.114 (0.053)**		0.019 (0.011)*
(4)	# of competitors × Log(experience)× Manager school SAT above 1400			-0.010 (0.013)	-0.013 (0.014)
(5)	Log(experience)	2.138 (0.548)***	1.022 (0.265)***	0.020 (0.005)***	0.089 (0.022)***
(6)	Manager attended school with SAT score above 1400	1.299 (0.280)***	0.617 (0.138)***	-0.185 (0.094)**	-0.220 (0.093)**
(7)	Manager has degree in economics or business	4.231 (1.829)**	2.134 (0.904)**	0.003 (0.008)	0.234 (0.066)***
(8)	Log(experience)×Manager has econ/business degree	-1.629 (0.622)***	-0.805 (0.306)***		-0.082 (0.024)***
(8)	Log(experience)× Manager school SAT above 1400			0.092 (0.035)***	0.105 (0.035)***
(11)	Log (firm age)	0.279 (0.047)***	0.144 (0.025)***	0.022 (0.004)***	0.022 (0.004)***
(12)	Subsidiary	-0.987 (0.168)***	-0.495 (0.084)***	-0.058 (0.008)***	-0.059 (0.009)***
(13)	Privately owned	-0.993 (0.165)***	-0.499 (0.080)***	-0.049 (0.008)***	-0.047 (0.008)***
(14)	Venture capital	-0.115 (0.190)	-0.080 (0.098)	-0.009 (0.009)	-0.016 (0.008)*
(15)	# competitors	0.869 (0.252)***	0.461 (0.130)***	0.044 (0.008)***	0.086 (0.026)***
(16)	Place population in millions	-1.320 (0.711)*	-0.501 (0.349)	0.072 (0.051)	0.075 (0.051)
(17)	HH income in $1000	-0.058 (0.130)	-0.050 (0.064)	-0.002 (0.005)	-0.001 (0.005)
(18)	Median age	-0.093 (0.030)***	-0.043 (0.014)***	-0.002 (0.001)	-0.002 (0.001)
(19)	Household size	-0.910 (0.332)***	-0.397 (0.157)**	-0.008 (0.013)	-0.009 (0.013)
(20)	% foreign born	0.113 (0.686)	-0.035 (0.343)	-0.027 (0.029)	-0.024 (0.029)
(21)	% black	1.241 (0.456)***	0.617 (0.226)***	0.088 (0.029)***	0.088 (0.029)***
(22)	% below poverty line	3.137 (2.394)	0.811 (1.169)	0.019 (0.098)	0.021 (0.098)
(23)	GTE	0.779 (0.464)*	0.390 (0.211)*	0.014 (0.011)	0.015 (0.011)
(24)	RBOC	0.633 (0.411)	0.331 (0.185)*	0.020 (0.009)**	0.020 (0.009)**
(25)	Log(# of establishments)	2.025 (0.263)***	0.913 (0.124)***	0.046 (0.009)***	0.045 (0.009)***
(26)	Average # of employees per establishment	0.031 (0.012)**	0.015 (0.007)**	0.001 (0.001)*	0.001 (0.001)*
(27)	% establishments in manufacturing	-1.068 (0.866)	-0.486 (0.413)	-0.103 (0.031)***	-0.103 (0.031)***
(28)	Constant	-21.524 (2.966)***	-10.053 (1.470)***	-0.365 (0.105)***	-0.552 (0.124)***
(29)	Observations	5906	5906	5906	5906
(30)	(Pseudo) R-squared	0.28	0.27	0.16	0.16
(31)	Log Likelihood	-1188.94	-1196.49	N/A	N/A

Appendix Table 2.2: Table 2 with alternative covariates for manager ability

		(1) Log(exp) replaced with linear specification	(2) Log(exp) replaced with dummy for 20 or more years experience	(3) SAT 1400 replaced with SAT 1100	(4) SAT 1400 replaced with Manager attended US News top 25 school	(5) SAT 1400 replaced with Manager attended QS World top 25 school	(6) SAT 1400 replaced with Manager attended QS World top 50 school
(1)	# of competitors × Log(experience)	-0.002 (0.001)***	-0.028 (0.009)***	-0.021 (0.009)**	-0.022 (0.009)**	-0.022 (0.009)**	-0.022 (0.009)**
(2)	# of competitors × Manager attended school with SAT score above 1400	-0.017 (0.007)**	-0.018 (0.007)**	-0.007 (0.004)*	-0.015 (0.007)**	-0.018 (0.006)***	-0.016 (0.007)**
(3)	# of competitors × Manager has degree in economics or business	-0.033 (0.012)***	-0.012 (0.005)**	-0.060 (0.028)**	-0.060 (0.031)*	-0.058 (0.030)*	-0.058 (0.030)*
(4)	# of competitors × Log(experience)× Manager has econ/business degree	0.002 (0.001)**	0.019 (0.012)	0.018 (0.010)*	0.018 (0.011)*	0.018 (0.010)*	0.018 (0.010)*
(5)	Log(experience)	0.006 (0.001)***	0.039 (0.018)**	0.074 (0.021)***	0.083 (0.022)***	0.083 (0.022)***	0.083 (0.022)***
(6)	Manager attended school with SAT score above 1400	0.070 (0.015)***	0.063 (0.015)***	-0.025 (0.010)**	0.034 (0.012)***	0.051 (0.012)***	0.049 (0.012)***
(7)	Manager has degree in economics or business	0.082 (0.025)***	0.013 (0.010)	0.201 (0.064)***	0.213 (0.066)***	0.209 (0.065)***	0.210 (0.065)***
(8)	Log(experience)×Manager has econ/business degree	-0.005 (0.001)***	-0.037 (0.021)*	-0.069 (0.023)***	-0.073 (0.024)***	-0.073 (0.024)***	-0.073 (0.024)***
(9)	Log (firm age)	0.022 (0.004)***	0.023 (0.004)***	0.020 (0.004)***	0.021 (0.004)***	0.022 (0.004)***	0.022 (0.004)***
(10)	Subsidiary	-0.056 (0.009)***	-0.051 (0.008)***	-0.047 (0.009)***	-0.054 (0.009)***	-0.054 (0.009)***	-0.054 (0.009)***
(11)	Privately owned	-0.048 (0.008)***	-0.050 (0.008)***	-0.061 (0.009)***	-0.050 (0.008)***	-0.049 (0.008)***	-0.049 (0.008)***
(12)	Venture capital	-0.014 (0.008)*	-0.003 (0.008)	0.005 (0.007)	-0.008 (0.008)	-0.010 (0.008)	-0.010 (0.008)
(13)	# competitors	0.054 (0.009)***	0.032 (0.005)***	0.089 (0.025)***	0.088 (0.026)***	0.085 (0.026)***	0.085 (0.026)***
(14)	Place population in millions	0.076 (0.051)	0.071 (0.051)	0.073 (0.051)	0.080 (0.050)	0.078 (0.050)	0.078 (0.050)
(15)	HH income in $1000	-0.001 (0.005)	-0.001 (0.005)	-0.002 (0.005)	-0.001 (0.005)	-0.001 (0.005)	-0.001 (0.005)
(16)	Median age	-0.002 (0.001)	-0.002 (0.001)	-0.002 (0.001)	-0.002 (0.001)	-0.002 (0.001)	-0.002 (0.001)
(17)	Household size	-0.008 (0.013)	-0.007 (0.013)	-0.008 (0.013)	-0.009 (0.013)	-0.009 (0.013)	-0.009 (0.013)
(18)	% foreign born	-0.022 (0.029)	-0.023 (0.029)	-0.018 (0.029)	-0.020 (0.030)	-0.020 (0.029)	-0.020 (0.029)
(19)	% black	0.089 (0.029)***	0.092 (0.028)***	0.096 (0.029)***	0.090 (0.029)***	0.090 (0.029)***	0.089 (0.029)***
(20)	% below poverty line	0.022 (0.099)	0.019 (0.098)	0.013 (0.099)	0.026 (0.098)	0.022 (0.098)	0.020 (0.098)
(21)	GTE	0.016 (0.011)	0.015 (0.011)	0.018 (0.011)	0.015 (0.011)	0.015 (0.011)	0.015 (0.011)
(22)	RBOC	0.020 (0.009)**	0.020 (0.009)**	0.021 (0.009)**	0.019 (0.009)**	0.019 (0.009)**	0.019 (0.009)**
(23)	Log(# of establishments)	0.045 (0.009)***	0.045 (0.009)***	0.046 (0.009)***	0.044 (0.009)***	0.045 (0.009)***	0.045 (0.009)***
(24)	Average # of employees per establishment	0.001 (0.001)*	0.001 (0.001)*	0.001 (0.001)*	0.001 (0.001)*	0.001 (0.001)*	0.001 (0.001)*
(25)	% establishments in manufacturing	-0.103 (0.031)***	-0.103 (0.031)***	-0.105 (0.031)***	-0.105 (0.031)***	-0.106 (0.031)***	-0.105 (0.031)***
(26)	Constant	-0.400 (0.106)***	-0.323 (0.101)***	-0.495 (0.122)***	-0.532 (0.126)***	-0.530 (0.125)***	-0.530 (0.125)***
(27)	Observations	5906	5906	5906	5906	5906	5906
(28)	R-squared	0.16	0.16	0.16	0.16	0.16	0.16

Appendix Table 2.3: Table 2 with additional controls

		(1) Age	(2) Grad degree	(3) Eng/Sci degree	(4) Grad and Eng/Sci degree	(5) All three controls
(1)	# of competitors × Log(experience)	-0.022 (0.009)**	-0.022 (0.009)**	-0.023 (0.009)**	-0.023 (0.009)**	-0.023 (0.009)**
(2)	# of competitors × Manager attended school with SAT score above 1400	-0.016 (0.007)**	-0.016 (0.007)**	-0.016 (0.007)**	-0.017 (0.007)**	-0.017 (0.007)**
(3)	# of competitors × Manager has degree in economics or business	-0.062 (0.031)**	-0.060 (0.030)**	-0.061 (0.030)**	-0.061 (0.030)**	-0.063 (0.030)**
(4)	# of competitors × Log(experience)× Manager has econ/business degree	0.019 (0.011)*	0.018 (0.010)*	0.018 (0.010)*	0.019 (0.010)*	0.019 (0.011)*
(5)	Log(experience)	0.074 (0.022)***	0.088 (0.022)***	0.103 (0.023)***	0.108 (0.022)***	0.096 (0.022)***
(6)	Manager attended school with SAT score above 1400	0.078 (0.015)***	0.059 (0.014)***	0.068 (0.014)***	0.058 (0.014)***	0.070 (0.015)***
(7)	Manager has degree in economics or business	0.210 (0.065)***	0.222 (0.065)***	0.252 (0.066)***	0.269 (0.066)***	0.259 (0.065)***
(8)	Log(experience)×Manager has econ/business degree	-0.073 (0.023)***	-0.078 (0.024)***	-0.091 (0.024)***	-0.098 (0.024)***	-0.094 (0.024)***
(9)	Log (firm age)	0.026 (0.004)***	0.024 (0.004)***	0.017 (0.004)***	0.019 (0.004)***	0.022 (0.004)***
(10)	Subsidiary	-0.060 (0.009)***	-0.052 (0.009)***	-0.050 (0.009)***	-0.043 (0.009)***	-0.048 (0.009)***
(11)	Privately owned	-0.033 (0.008)***	-0.042 (0.008)***	-0.052 (0.008)***	-0.044 (0.008)***	-0.034 (0.008)***
(12)	Venture capital	-0.009 (0.008)	-0.009 (0.009)	-0.009 (0.008)	0.000 (0.008)	0.002 (0.008)
(13)	Manager age	0.002 (0.000)***				0.002 (0.001)***
(14)	Manager has graduate degree		0.021 (0.009)**		0.029 (0.010)***	0.020 (0.011)*
(15)	Manager has degree in engineering or science			-0.031 (0.008)***	-0.037 (0.008)***	-0.035 (0.008)***
(16)	# competitors	0.087 (0.026)***	0.086 (0.026)***	0.088 (0.026)***	0.089 (0.026)***	0.090 (0.026)***
(17)	Place population in millions	0.076 (0.050)	0.073 (0.051)	0.078 (0.051)	0.074 (0.051)	0.075 (0.050)
(18)	HH income in $1000	-0.001 (0.005)	-0.002 (0.005)	-0.001 (0.005)	-0.002 (0.005)	-0.001 (0.005)
(19)	Median age	-0.002 (0.001)	-0.002 (0.001)	-0.002 (0.001)	-0.002 (0.001)	-0.002 (0.001)
(20)	Household size	-0.010 (0.013)	-0.008 (0.013)	-0.009 (0.013)	-0.009 (0.013)	-0.010 (0.013)
(21)	% foreign born	-0.018 (0.029)	-0.021 (0.029)	-0.022 (0.029)	-0.020 (0.029)	-0.018 (0.029)
(22)	% black	0.088 (0.029)***	0.092 (0.029)***	0.084 (0.029)***	0.088 (0.029)***	0.087 (0.029)***
(23)	% below poverty line	0.029 (0.098)	0.008 (0.098)	0.028 (0.099)	0.014 (0.098)	0.027 (0.098)
(24)	GTE	0.016 (0.011)	0.015 (0.011)	0.016 (0.011)	0.016 (0.011)	0.017 (0.011)
(25)	RBOC	0.020 (0.009)**	0.020 (0.009)**	0.020 (0.009)**	0.020 (0.009)**	0.020 (0.009)**
(26)	Log(# of establishments)	0.045 (0.009)***	0.046 (0.009)***	0.044 (0.009)***	0.045 (0.009)***	0.045 (0.009)***
(27)	Average # of employees per establishment	0.001 (0.001)*	0.001 (0.001)*	0.001 (0.001)*	0.001 (0.001)	0.001 (0.001)
(28)	% establishments in manufacturing	-0.102 (0.030)***	-0.106 (0.031)***	-0.100 (0.030)***	-0.103 (0.030)***	-0.101 (0.030)***
(29)	Constant	-0.624 (0.127)***	-0.573 (0.123)***	-0.562 (0.125)***	-0.605 (0.123)***	-0.656 (0.127)***
(30)	R-squared	0.16	0.16	0.16	0.16	0.17

Appendix Table 2.4: Full set of coefficients from Table 3

		(1)	(2)	(3)	(4)
		Conditional on entry		All Observations	
(1)	**Log(experience)**	-0.068 (0.130)	-0.084 (0.133)	0.170 (0.037)***	0.186 (0.037)***
(2)	**Manager attended school with SAT score above 1400**	-0.156 (0.076)**	-0.158 (0.080)**	0.258 (0.024)***	0.251 (0.024)***
(3)	**Manager has degree in economics or business**	-0.269 (0.424)	-0.320 (0.433)	0.412 (0.117)***	0.481 (0.116)***
(4)	**Log(experience) × Manager has degree in economics or business**	-0.027 (0.149)	-0.007 (0.152)	-0.247 (0.041)***	-0.271 (0.041)***
(5)	**Log (firm age)**	0.200 (0.023)***	0.206 (0.023)***	0.120 (0.006)***	0.123 (0.006)***
(6)	**Subsidiary**	0.126 (0.068)*	0.116 (0.069)*	-0.096 (0.016)***	-0.100 (0.016)***
(7)	**Privately owned**	-0.145 (0.063)**	-0.132 (0.065)**	-0.164 (0.015)***	-0.160 (0.015)***
(8)	**Venture capital**	0.327 (0.097)***	0.315 (0.099)***	0.224 (0.021)***	0.212 (0.021)***
(9)	**# of competitors**	-0.002 (0.005)	0.003 (0.009)	-0.001 (0.002)	0.005 (0.003)
(10)	**Place population in millions**		-0.016 (0.226)		0.019 (0.070)
(11)	**HH income in $1000**		0.023 (0.057)		0.021 (0.010)**
(12)	**Median age**		-0.004 (0.011)		0.003 (0.003)
(13)	**Household size**		0.008 (0.129)		-0.030 (0.026)
(14)	**% foreign born**		0.154 (0.314)		0.352 (0.071)***
(15)	**% black**		0.199 (0.181)		0.096 (0.050)*
(16)	**% below poverty line**		-0.499 (1.055)		0.237 (0.221)
(17)	**GTE**		0.074 (0.131)		0.059 (0.028)**
(18)	**RBOC**		0.038 (0.108)		-0.004 (0.023)
(19)	**Log(# of establishments)**		-0.063 (0.090)		-0.038 (0.018)**
(20)	**Average # of employees per establishment**		0.004 (0.007)		-0.001 (0.001)
(21)	**% establishments in manufacturing**		0.010 (0.301)		0.102 (0.064)
(22)	**Constant**	0.520 (0.369)	1.007 (1.101)	0.037 (0.105)	0.049 (0.235)
(23)	**# of observations**	472	472	5906	5906
(24)	**R^2**	0.29	0.30	0.18	0.19

*significant at 90% confidence level. **significant at 95% confidence level. ***significant at 99% confidence level

Appendix Table 2.5: Alternative specifications for Table 3 col. (1) and (2)—Conditional on entry

		(1) Extra covariates	(2) Log(exp) replaced with linear specification	(3) SAT 1400 replaced with US News top 25 school	(4) SAT 1400 replaced with QS World top 25 school	(5) Logit	(6) Probit
(1)	**Log(experience)**	-0.086 (0.145)	0.005 (0.007)	-0.092 (0.133)	-0.084 (0.133)	-0.308 (0.728)	-0.117 (0.430)
(2)	**Manager attended school with SAT score above 1400**	-0.186 (0.447)	-0.072 (0.146)	-0.341 (0.432)	-0.320 (0.433)	-0.750 (0.428)*	-0.461 (0.256)*
(3)	**Manager has degree in economics or business**	-0.138 (0.089)	-0.194 (0.080)**	-0.143 (0.072)**	-0.158 (0.080)**	-1.434 (2.352)	-0.632 (1.387)
(4)	**Log(experience) × Manager has degree in econ or business**	-0.051 (0.158)	-0.015 (0.008)*	-0.001 (0.152)	-0.007 (0.152)	-0.078 (0.829)	-0.121 (0.490)
(5)	**Log (firm age)**	0.193 (0.025)***	0.202 (0.023)***	0.206 (0.023)***	0.206 (0.023)***	1.091 (0.158)***	0.657 (0.090)***
(6)	**Subsidiary**	0.116 (0.071)	0.112 (0.069)	0.116 (0.069)*	0.116 (0.069)*	0.665 (0.384)*	0.398 (0.230)*
(7)	**Privately owned**	-0.100 (0.072)	-0.122 (0.064)*	-0.129 (0.065)**	-0.132 (0.065)**	-0.686 (0.361)*	-0.406 (0.213)*
(8)	**Venture capital**	0.356 (0.104)***	0.237 (0.099)**	0.321 (0.099)***	0.315 (0.099)***	1.689 (0.562)***	0.983 (0.308)***
(9)	**# of competitors**	0.006 (0.009)	0.003 (0.009)	0.004 (0.009)	0.003 (0.009)	0.022 (0.049)	0.012 (0.029)
(10)	**Place population in millions**	0.005 (0.226)	0.000 (0.225)	0.001 (0.226)	-0.016 (0.226)	-0.222 (1.262)	-0.104 (0.746)
(11)	**HH income in $1000**	0.027 (0.056)	0.015 (0.057)	0.023 (0.057)	0.023 (0.057)	0.091 (0.320)	0.052 (0.189)
(12)	**Median age**	-0.003 (0.011)	-0.002 (0.011)	-0.003 (0.011)	-0.004 (0.011)	-0.034 (0.064)	-0.020 (0.037)
(13)	**Household size**	-0.004 (0.128)	0.019 (0.129)	0.006 (0.130)	0.008 (0.129)	-0.008 (0.705)	-0.035 (0.417)
(14)	**% foreign born**	0.162 (0.311)	0.150 (0.312)	0.150 (0.314)	0.154 (0.314)	1.053 (1.790)	0.709 (1.038)
(15)	**% black**	0.164 (0.182)	0.215 (0.180)	0.195 (0.181)	0.199 (0.181)	1.363 (1.039)	0.750 (0.609)
(16)	**% below poverty line**	-0.376 (1.049)	-0.587 (1.048)	-0.487 (1.055)	-0.499 (1.055)	-3.773 (5.911)	-1.992 (3.481)
(17)	**GTE**	0.067 (0.130)	0.069 (0.130)	0.078 (0.131)	0.074 (0.131)	0.494 (0.726)	0.299 (0.425)
(18)	**RBOC**	0.027 (0.107)	0.032 (0.107)	0.040 (0.108)	0.038 (0.108)	0.264 (0.600)	0.157 (0.347)
(19)	**Log(# of establishments)**	-0.079 (0.090)	-0.057 (0.090)	-0.069 (0.090)	-0.063 (0.090)	-0.296 (0.489)	-0.193 (0.292)
(20)	**Average # of employees per establishment**	0.003 (0.007)	0.004 (0.007)	0.004 (0.007)	0.004 (0.007)	0.023 (0.039)	0.014 (0.024)
(21)	**% establishments in manufacturing**	0.051 (0.299)	0.008 (0.299)	0.003 (0.301)	0.010 (0.301)	0.085 (1.677)	0.170 (1.008)
(22)	**Manager age**	0.007 (0.004)*					
(23)	**Manager has graduate degree**	-0.026 (0.057)					
(24)	**Manager has degree in engineering or science**	-0.140 (0.059)**					
(25)	**Constant**	0.876 (1.098)	0.602 (1.031)	1.056 (1.102)	1.007 (1.101)	2.610 (5.968)	1.502 (3.566)
(26)	**# of observations**	472	472	472	472	472	472
(27)	**(Pseudo)-R^2**	0.32	0.31	0.30	0.30	0.24	0.25
(28)	**Log Likelihood**	N/A	N/A	N/A	N/A	-245.77	-235.68

Appendix Table 2.6: Alternative specifications for Table 3 col. (3) and (4)—All observations

|		(1)	(2)	(3)	(4)	(5)	(6)
		Extra covariates	Log(exp) replaced with linear specification	SAT 1400 replaced with US News top 25 school	SAT 1400 replaced with QS World top 25 school	Logit	Probit
(1)	**Log(experience)**	0.104	0.015	0.180	0.180	0.998	0.622
		(0.037)***	(0.002)***	(0.037)***	(0.036)***	(0.187)***	(0.114)***
(2)	**Manager attended school with SAT score above 1400**	0.273	0.229	0.257	0.344	1.086	0.641
		(0.025)***	(0.024)***	(0.020)***	(0.022)***	(0.115)***	(0.067)***
(3)	**Manager has degree in economics or business**	0.238	0.166	0.461	0.446	2.614	1.615
		(0.116)**	(0.041)***	(0.116)***	(0.115)***	(0.581)***	(0.354)***
(4)	**Log(experience) × Manager has degree in econ or business**	-0.169	-0.026	-0.260	-0.264	-1.398	-0.855
		(0.041)***	(0.002)***	(0.041)***	(0.041)***	(0.207)***	(0.126)***
(5)	**Log (firm age)**	0.136	0.127	0.134	0.135	0.570	0.352
		(0.007)***	(0.006)***	(0.007)***	(0.006)***	(0.033)***	(0.020)***
(6)	**Subsidiary**	-0.157	-0.094	-0.106	-0.100	-0.507	-0.313
		(0.017)***	(0.016)***	(0.016)***	(0.016)***	(0.083)***	(0.051)***
(7)	**Privately owned**	-0.189	-0.152	-0.143	-0.143	-0.768	-0.470
		(0.016)***	(0.014)***	(0.015)***	(0.015)***	(0.073)***	(0.044)***
(8)	**Venture capital**	0.134	0.182	0.209	0.199	1.007	0.628
		(0.021)***	(0.021)***	(0.021)***	(0.021)***	(0.103)***	(0.062)***
(9)	**# of competitors**	0.005	0.006	0.005	0.006	0.027	0.016
		(0.003)	(0.003)*	(0.003)	(0.003)*	(0.017)	(0.010)
(10)	**Place population in millions**	0.022	0.031	0.005	0.009	0.079	0.052
		(0.068)	(0.069)	(0.070)	(0.069)	(0.345)	(0.208)
(11)	**HH income in $1000**	0.021	0.022	0.018	0.018	0.102	0.062
		(0.010)**	(0.010)**	(0.010)*	(0.010)*	(0.050)**	(0.030)**
(12)	**Median age**	0.003	0.003	0.003	0.003	0.017	0.010
		(0.003)	(0.003)	(0.003)	(0.003)	(0.013)	(0.008)
(13)	**Household size**	-0.026	-0.031	-0.026	-0.028	-0.152	-0.089
		(0.026)	(0.026)	(0.026)	(0.026)	(0.129)	(0.077)
(14)	**% foreign born**	0.341	0.370	0.334	0.339	1.750	1.047
		(0.070)***	(0.071)***	(0.071)***	(0.071)***	(0.357)***	(0.214)***
(15)	**% black**	0.104	0.091	0.100	0.093	0.503	0.300
		(0.049)**	(0.049)*	(0.050)**	(0.049)*	(0.250)**	(0.150)**
(16)	**% below poverty line**	0.228	0.244	0.177	0.177	1.153	0.693
		(0.217)	(0.218)	(0.220)	(0.219)	(1.100)	(0.662)
(17)	**GTE**	0.054	0.061	0.052	0.054	0.282	0.172
		(0.028)**	(0.028)**	(0.028)*	(0.028)*	(0.139)**	(0.084)**
(18)	**RBOC**	-0.006	-0.005	-0.008	-0.006	-0.027	-0.014
		(0.023)	(0.023)	(0.023)	(0.023)	(0.115)	(0.069)
(19)	**Log(# of establishments)**	-0.037	-0.042	-0.033	-0.035	-0.182	-0.108
		(0.018)**	(0.018)**	(0.018)*	(0.018)**	(0.088)**	(0.053)**
(20)	**Average # of employees per establishment**	-0.001	-0.001	-0.001	-0.001	-0.005	-0.003
		(0.001)	(0.001)	(0.001)	(0.001)	(0.006)	(0.004)
(21)	**% establishments in manufacturing**	0.094	0.098	0.086	0.087	0.484	0.295
		(0.063)	(0.064)	(0.064)	(0.064)	(0.319)	(0.192)
(22)	**Manager age**	-0.003					
		(0.001)***					
(23)	**Manager has graduate degree**	-0.119					
		(0.016)***					
(24)	**Manager has degree in engineering or science**	0.200					
		(0.015)***					
(25)	**Constant**	0.404	0.339	-0.003	0.049	-2.435	-1.575
		(0.233)*	(0.213)	(0.234)	(0.232)	(1.169)**	(0.704)**
(26)	**# of observations**	5906	5906	5906	5906	5906	5906
(27)	**(Pseudo)-R^2**	0.23	0.21	0.20	0.21	0.15	0.15
(28)	**Log Likelihood**	N/A	N/A	N/A	N/A	-3472.63	-3471.73

Appendix Table 2.7: Robustness of Table 6 to probit and logit specifications

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Probit				**Logit**			
	Survive in sample to 2002[b]		**Alternative definition of survival to 2002[b]**		**Survive in sample to 2002[c]**		**Alternative definition of survival to 2002[c]**	
τ [a]	0.909	1.093	0.876	1.303	1.455	1.769	1.422	2.114
	(0.429)**	(0.510)**	(0.459)*	(0.568)**	(0.699)**	(0.845)**	(0.760)*	(0.945)**
Log(employees in 1998)		-0.006		-0.109		-0.021		-0.166
		(0.185)		(0.200)		(0.299)		(0.326)
Log(firm age in 1998)		-0.045		-0.013		-0.071		-0.021
		(0.062)		(0.066)		(0.100)		(0.110)
Constant	-2.546	-2.726	-1.823	-2.594	-4.077	-4.402	-2.960	-4.223
	(1.124)**	(1.201)**	(1.183)	(1.322)**	(1.833)**	(1.982)**	(1.947)	(2.201)*
# of observations	96	90	96	90	96	90	96	90
R^2	0.04	0.05	0.03	0.06	0.04	0.05	0.05	0.05
Log Likelihood	-63.21	-58.67	-59.19	-52.69	-63.22	-58.69	-59.21	-52.76

[a] τ is calculated from the coefficients in Table 4 Column 1. Heteroskedasticity-robust standard errors in parentheses. Unlike the linear results in the main paper, in these non-linear specifications standard errors are not adjusted to account for uncertainty in the estimate of τ.

Appendix Figure 2.8: Percent of decisions with ex post regret
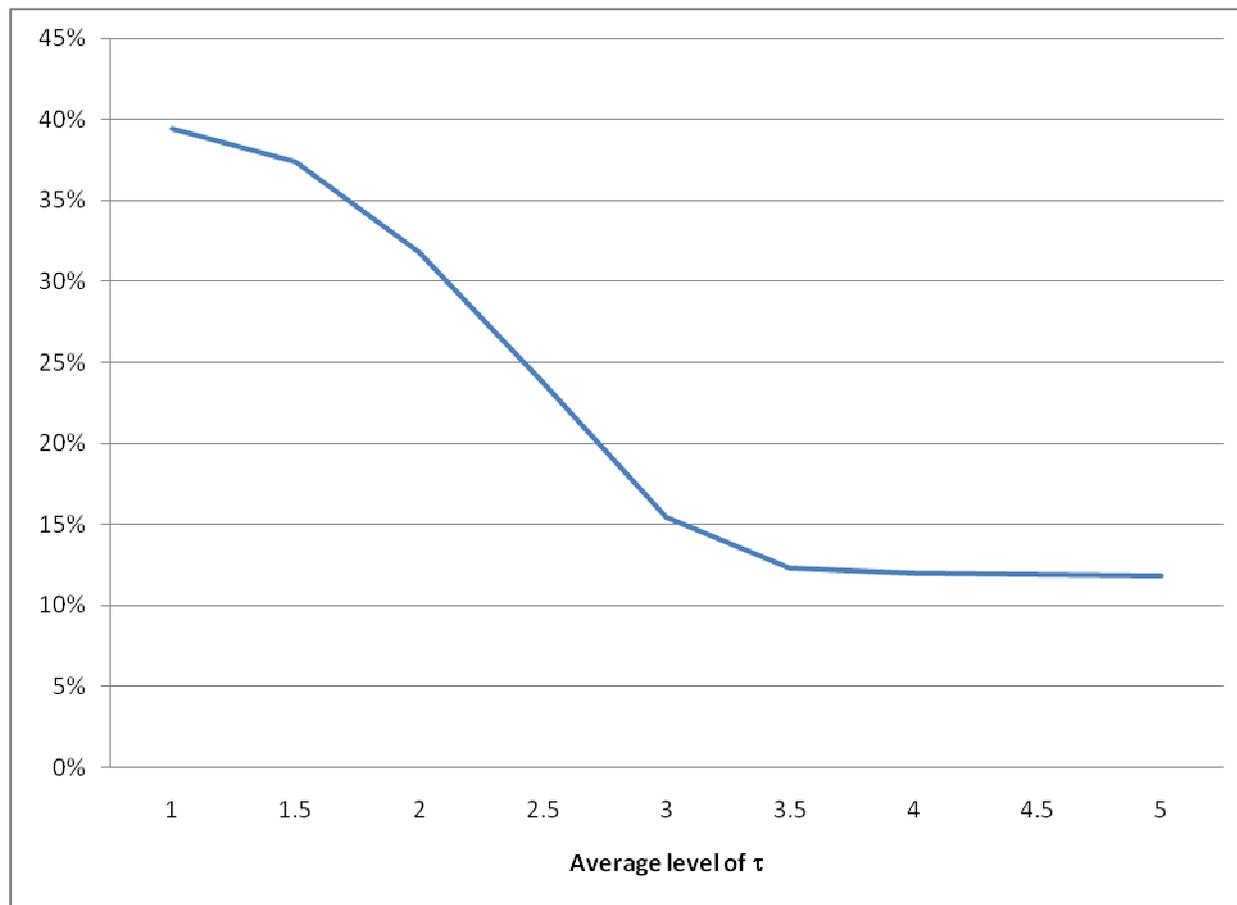
In order to construct this figure, we simulate what would happen if strategic ability was higher or lower than estimated. In particular, we add or subtract a constant from the estimated value of τ in order to change average value of τ. We then simulate how the CLECs would behave based on these different assumptions and our parameter estimates in table 4 column 1. By "regret", we mean that firms would have made a different decision had they correctly conjectured competitor behavior.