

SUPPLEMENT TO

**SEARCH ENGINE ADVERTISING:
CHANNEL SUBSTITUTION WHEN PRICING ADS TO CONTEXT**

Avi Goldfarb and Catherine Tucker^{*}

^{*}Avi Goldfarb is Associate Professor of Marketing, Rotman School of Management, University of Toronto, 105 St George St., Toronto, ON. Tel. 416-946-8604. Email: agoldfarb@rotman.utoronto.ca. Catherine E. Tucker is Assistant Professor of Marketing, MIT Sloan School of Business, 1 Amherst St., E40-167, Cambridge, MA. Tel. 617-252-1499. Email: cetucker@mit.edu.

Online Table 1: Prices by State for Six Keywords

State	Asbestos lawyer/ attorney	Car/truck accident lawyer/ attorney	DUI lawyer/ attorney	Medical Malpractice lawyer/ attorney	Patent lawyer/ attorney	Real Estate lawyer/ attorney	All keywords
Alabama*	28.03	15.40	13.24	13.39	4.01	3.17	9.31
Alaska	27.76	15.04	11.69	12.09	3.57	3.57	8.90
Arizona*	31.75	21.70	17.56	13.73	4.25	4.12	10.53
Arkansas*	30.13	18.04	14.59	11.44	3.81	3.06	9.34
California	29.12	20.50	16.58	13.57	4.19	3.84	10.26
Colorado*	30.19	24.19	15.19	13.03	4.06	3.67	10.66
Connecticut*	30.15	15.23	21.76	15.35	4.46	4.15	9.66
Delaware	34.62	15.77	12.92	10.89	4.17	2.79	9.39
Florida*	28.87	18.59	16.26	13.16	4.20	3.82	9.96
Georgia*	26.69	20.06	14.64	11.07	4.06	3.35	10.07
Hawaii*	4.94	13.24	14.18	6.43	3.71	3.43	7.61
Idaho	5.78	8.14	14.93	7.47	3.68	3.99	6.69
Illinois	5.61	14.76	14.78	7.95	5.04	4.62	7.80
Indiana	5.47	11.35	11.61	6.20	4.61	3.60	6.73
Iowa	17.75	12.77	12.89	11.19	3.79	3.18	8.96
Kansas	6.75	7.58	15.77	7.42	3.43	4.25	7.35
Kentucky	5.07	10.75	14.12	6.78	3.89	3.84	7.33
Louisiana*	18.34	15.20	12.73	10.47	3.80	3.36	7.87
Maine	12.66	12.19	13.06	6.39	3.87	3.29	7.91
Maryland	18.02	14.82	21.72	11.99	4.54	5.05	8.74
Massachusetts	5.83	8.37	15.35	7.79	3.05	3.35	7.74
Michigan	8.08	13.89	12.82	9.65	4.47	4.33	7.72
Minnesota	5.70	11.44	13.23	6.39	5.35	3.12	6.92
Mississippi	5.49	8.77	13.99	7.95	3.25	3.96	7.32
Missouri*	30.48	15.54	16.36	12.24	3.96	4.03	9.38
Montana	16.48	N/A	13.57	8.36	3.87	2.98	8.67
Nebraska	8.09	14.33	12.22	8.26	3.80	4.13	7.22
Nevada*	21.78	14.23	13.37	12.04	5.13	4.70	8.44

New Hampshire	29.99	16.07	13.02	16.07	4.41	3.00	9.04
New Jersey	30.45	27.14	21.72	15.48	4.34	5.26	11.36
New Mexico	31.94	14.61	21.66	15.47	4.28	4.03	9.35
New York*	22.07	17.74	14.62	12.15	4.24	3.45	9.23
North Carolina	28.93	20.42	16.77	14.11	4.05	3.71	9.99
North Dakota	23.14	18.70	12.86	9.86	3.88	3.14	9.44
Ohio	32.04	16.34	16.73	13.92	4.18	3.71	9.28
Oklahoma	33.73	14.99	17.56	12.86	4.26	3.53	9.45
Oregon	26.52	16.05	14.73	12.16	4.07	3.51	9.48
Pennsylvania	29.41	18.39	17.23	13.48	4.20	3.76	10.07
Rhode Island	28.50	19.29	12.98	15.27	4.28	2.90	9.19
South Carolina*	29.55	15.43	12.87	13.02	4.45	3.04	9.46
South Dakota	23.93	16.31	12.62	11.64	4.08	3.00	9.83
Tennessee*	29.57	16.08	14.87	13.42	4.37	3.16	9.51
Texas	29.06	18.33	15.25	12.33	4.06	3.51	10.03
Utah	28.14	15.10	21.72	15.72	4.29	4.09	9.58
Vermont	28.50	19.29	12.98	15.27	4.28	2.90	9.19
Virginia	33.92	17.32	14.53	13.24	3.91	3.43	9.58
Washington	29.42	16.85	16.24	11.90	4.23	3.68	9.81
West Virginia	22.80	21.57	14.79	11.67	3.28	3.82	9.30
Wisconsin	29.09	15.28	15.68	12.66	4.18	3.14	9.29
Wyoming*	N/A	N/A	17.25	10.13	2.39	3.60	8.66
Total	23.48	15.90	15.06	11.65	4.12	3.62	9.28

*States with solicitation restrictions

Online Table 2: Full set of coefficients for Table 6

Control Group	(1) Logged Divorce keywords as controls	(2) Logged Only misdemeanor offenses as controls	(3) Logged Diluted definition	(4) Linear Divorce keywords as controls	(5) Linear Only misdemeanor offenses as controls	(6) Linear Diluted definition
Personal injury keyword <i>and</i> law restricting solicitation	0.082*** (0.029)	0.054* (0.029)	0.059** (0.024)	1.708*** (0.417)	1.005*** (0.354)	1.158*** (0.343)
SearchVolume	-0.066 (0.152)	0.275*** (0.093)	0.017*** (0.006)	-1.460 (2.521)	5.470*** (1.675)	0.017 (0.055)
ManyBidders	0.167** (0.074)	-0.017 (0.032)	0.052** (0.021)	1.972* (1.055)	-0.483 (0.334)	0.368** (0.183)
Personal injury keyword × SearchVolume	-0.012 (0.072)	-0.168*** (0.038)	-0.026 (0.039)	0.274 (1.186)	-2.649*** (0.654)	1.751*** (0.581)
Personal injury keyword × GSP	0.555** (0.253)	0.414** (0.193)	0.573*** (0.202)	12.708*** (3.401)	6.183** (2.759)	11.855*** (3.071)
Personal injury keyword × CivilCasestoPop	-0.563 (0.431)	-0.318 (0.261)	-0.592** (0.290)	-13.120** (5.171)	-6.542* (3.683)	-11.157*** (3.794)
Personal injury keyword × MSALawOfftoPop	-0.006* (0.003)	0.002 (0.002)	-0.001 (0.001)	-0.065* (0.033)	0.030 (0.038)	-0.020 (0.024)
Personal injury keyword × JudicialHellHole	0.195*** (0.055)	-0.004 (0.044)	-0.016 (0.036)	3.215*** (0.880)	0.649 (0.758)	0.510 (0.571)
Personal injury keyword × AvMalpPayout	-0.013 (0.013)	-0.020 (0.014)	-0.022*** (0.008)	-0.373** (0.176)	-0.306 (0.199)	-0.379*** (0.120)
Personal injury keyword × ManyBidders	-0.163** (0.077)	0.018 (0.040)	-0.054* (0.032)	-1.778 (1.135)	0.651 (0.558)	-0.188 (0.497)
Observations	3375	3764	12048	3376	3765	12055
R-Squared	0.76	0.69	0.89	0.71	0.66	0.81

Dependent variable: midpoint of the keyword's estimated cost per click, logged in columns 1-3 and linear in columns 4-6. Robust standard errors clustered at the keyword level are given in parentheses. All regressions include a full set of fixed effects for each city and each keyword. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Online Table 3: Alternative specification of Table 6 without controls

	(1)	(2)	(3)	(4)	(5)	(6)
Control Group	Logged Divorce keywords as controls	Logged Only misdemeanor offenses as controls	Logged Diluted definition	Linear Divorce keywords as controls	Linear Only misdemeanor offenses as controls	Linear Diluted definition
Personal injury keyword <i>and</i> law restricting solicitation	0.059** (0.024)	0.043* (0.024)	0.043** (0.020)	1.228*** (0.337)	0.782** (0.300)	0.866*** (0.280)
Observations	3435	3832	12264	3436	3833	12271
R-Squared	0.75	0.68	0.89	0.71	0.66	0.81

Dependent variable: midpoint of the keyword's estimated cost per click, logged in columns 1-3 and linear in columns 4-6. Robust standard errors clustered at the keyword level are given in parentheses. All regressions include a full set of fixed effects for each city and each keyword. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Online Table 4: Full set of coefficients from Table 7

	(1) Logged All States	(2) Logged Arkansas + States without Laws	(3) Logged Not Arkansas	(4) Linear All States	(5) Linear Arkansas + States without Laws	(6) Linear Not Arkansas
Covered Death keyword <i>and</i> law restricting solicitation	0.095*** (0.031)	0.625*** (0.086)	0.088*** (0.030)	1.709*** (0.459)	7.226*** (1.286)	1.619*** (0.435)
Covered Injury keyword <i>and</i> law restricting solicitation	0.035* (0.020)		0.032* (0.019)	0.868*** (0.289)		0.839*** (0.284)
Not Covered Injury keyword <i>and</i> law restricting solicitation	-0.013 (0.068)	-0.141 (0.091)		-0.053 (1.342)	-1.820 (1.631)	
SearchVolume	0.017*** (0.006)	0.010 (0.007)		0.017 (0.054)	-0.042 (0.062)	
ManyBidders	0.051** (0.021)	0.077*** (0.022)		0.353* (0.183)	0.515*** (0.197)	
Personal injury keyword × SearchVolume	-0.025 (0.039)	-0.052 (0.040)	-0.019 (0.039)	1.767*** (0.580)	0.923 (0.622)	1.764*** (0.583)
Personal injury keyword × GSP	0.599*** (0.205)	3.924*** (0.350)	0.671*** (0.218)	12.300*** (3.121)	42.029*** (2.700)	13.146*** (3.346)
Personal injury keyword × CivilCasestoPop	-0.608** (0.293)	-0.285 (0.332)	-0.616** (0.292)	-11.452*** (3.835)	-8.559** (3.840)	-11.407*** (3.802)
Personal injury keyword × MSALawOfftoPop	-0.001 (0.001)	-0.012*** (0.003)	-0.002 (0.001)	-0.027 (0.024)	-0.159*** (0.035)	-0.031 (0.024)
Personal injury keyword × JudicialHellHole	-0.012 (0.036)	-0.027 (0.043)	-0.013 (0.036)	0.595 (0.574)	1.631** (0.704)	0.595 (0.574)
Personal injury keyword × AvMalpPayout	-0.023*** (0.008)	-0.004 (0.010)	-0.024*** (0.008)	-0.395*** (0.121)	-0.267* (0.145)	-0.406*** (0.124)
Personal injury keyword × ManyBidders	-0.053 (0.032)	-0.066** (0.031)	-0.003 (0.026)	-0.172 (0.499)	-0.442 (0.435)	0.148 (0.466)
Observations	12048	8039	11890	12055	8045	11897
R-Squared	0.89	0.88	0.89	0.82	0.79	0.81

Dependent variable: midpoint of the keyword's estimated cost per click, logged in columns 1-3 and linear in columns 4-6. Robust standard errors clustered at the keyword level are given in parentheses. All regressions include a full set of fixed effects for each city and each keyword. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Online Table 5: Alternative specification of Table 7 without controls

	(1) Logged All States	(2) Logged Arkansas + States without Laws	(3) Logged Not Arkansas	(4) Linear All States	(5) Linear Arkansas + States without Laws	(6) Linear Not Arkansas
Covered Death keyword <i>and</i> law restricting solicitation	0.077*** (0.026)	0.704*** (0.199)	0.071*** (0.026)	1.335*** (0.384)	6.957*** (2.372)	1.272*** (0.367)
Covered Injury keyword <i>and</i> law restricting solicitation	0.020 (0.017)		0.018 (0.017)	0.617** (0.244)		0.598** (0.242)
Not Covered Injury keyword <i>and</i> law restricting solicitation	-0.043 (0.069)	-0.160 (0.236)		-0.777 (1.373)	-2.384 (3.002)	
Observations	12264	8255	12106	12271	8261	12113
R-Squared	0.89	0.64	0.89	0.81	0.58	0.81

Dependent variable: midpoint of the keyword's estimated cost per click, logged in columns 1-3 and linear in columns 4-6. Robust standard errors clustered at the keyword level are given in parentheses. All regressions include a full set of fixed effects for each city and each keyword. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Online Table 6: Full set of coefficients for Table 8

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Logged	Logged	Logged	Logged	Logged	Linear	Linear	Linear	Linear	Linear
Personal injury keyword <i>and</i> law restricting solicitation	0.059** (0.027)	0.068*** (0.025)	0.068*** (0.026)	0.068*** (0.026)	0.050* (0.029)	1.418*** (0.381)	1.336*** (0.369)	1.373*** (0.375)	1.352*** (0.372)	1.454*** (0.392)
Civil Case Keyword <i>and</i> law restricting solicitation	-0.018 (0.019)				-0.025 (0.019)	0.176 (0.154)				0.202 (0.137)
Divorce Law keyword <i>and</i> law restricting solicitation		-0.0004 (0.018)			-0.023 (0.018)		-0.092 (0.138)			0.003 (0.089)
Felony Crime Keyword <i>and</i> law restricting solicitation			-0.010 (0.018)		-0.032 (0.021)			0.131 (0.200)		0.146 (0.214)
Misdemeanor keyword <i>and</i> law restricting solicitation				-0.006 (0.026)	-0.006 (0.025)				-0.035 (0.265)	-0.124 (0.299)
SearchVolume	0.017*** (0.006)	0.017*** (0.006)	0.016*** (0.006)	0.016*** (0.006)	0.017*** (0.006)	0.038 (0.052)	0.022 (0.054)	0.001 (0.055)	0.001 (0.055)	0.017 (0.054)
ManyBidders	0.041 (0.031)	0.041* (0.021)	0.067*** (0.025)	0.071*** (0.024)	0.052** (0.021)	0.166 (0.305)	0.291 (0.182)	0.518*** (0.192)	0.563*** (0.189)	0.361* (0.183)
Personal injury keyword × SearchVolume	-0.030 (0.038)	-0.030 (0.039)	-0.025 (0.039)	-0.024 (0.039)	-0.027 (0.038)	1.634*** (0.573)	1.708*** (0.578)	1.825*** (0.574)	1.833*** (0.572)	1.729*** (0.576)
Personal injury keyword × GSP	0.528** (0.216)	0.588*** (0.205)	0.598*** (0.209)	0.588*** (0.207)	0.590*** (0.204)	12.236*** (3.216)	12.096*** (3.111)	12.675*** (3.146)	12.475*** (3.126)	12.088*** (3.113)
Personal injury keyword × CivilCasestoPop	-0.327 (0.315)	-0.615** (0.295)	-0.658** (0.301)	-0.621** (0.298)	-0.609** (0.293)	-11.473*** (3.975)	-11.435*** (3.842)	-12.083*** (3.895)	-11.618*** (3.876)	-11.469*** (3.842)
Personal injury keyword × MSALawOfftoPop	-0.000 (0.002)	-0.001 (0.001)	-0.002 (0.001)	-0.002 (0.001)	-0.001 (0.001)	-0.012 (0.025)	-0.026 (0.024)	-0.037 (0.024)	-0.035 (0.023)	-0.027 (0.024)
Personal injury keyword × JudicialHellHole	0.002 (0.037)	-0.019 (0.036)	0.004 (0.037)	-0.002 (0.036)	-0.011 (0.036)	0.434 (0.569)	0.542 (0.567)	0.946 (0.577)	0.831 (0.568)	0.611 (0.567)
Personal injury keyword × AvMalpPayout	-0.022** (0.009)	-0.023*** (0.008)	-0.023*** (0.008)	-0.022*** (0.008)	-0.023*** (0.008)	-0.403*** (0.127)	-0.395*** (0.122)	-0.401*** (0.123)	-0.388*** (0.122)	-0.394*** (0.122)
Personal injury keyword × ManyBidders	-0.044 (0.039)	-0.044 (0.032)	-0.070** (0.035)	-0.073** (0.034)	-0.054* (0.032)	0.009 (0.552)	-0.118 (0.497)	-0.341 (0.502)	-0.387 (0.500)	-0.186 (0.497)
Other keyword ^a × SearchVolume	-0.051 (0.065)	-0.591*** (0.128)	0.438*** (0.098)	0.522*** (0.096)		-2.460*** (0.540)	-4.877*** (1.085)	14.925*** (2.248)	17.980*** (1.438)	
Other keyword × GSP	-0.128 (0.140)	0.125 (0.222)	0.080 (0.159)	-0.006 (0.169)		0.642 (1.391)	0.533 (1.554)	4.374** (1.711)	3.080 (2.034)	
Other keyword × CivilCasestoPop	0.554** (0.242)	-0.235 (0.378)	-0.344 (0.223)	-0.049 (0.224)		-0.210 (2.255)	-0.167 (2.565)	-3.300 (2.441)	0.260 (2.645)	
Other keyword × MSALawOfftoPop	0.002 (0.001)	0.004 (0.002)	-0.003 (0.002)	-0.005** (0.002)		0.028** (0.012)	0.023 (0.015)	-0.050* (0.028)	-0.087*** (0.029)	
Other keyword ×	0.032	-0.158***	0.057*	0.085***		-0.394	-1.252***	1.339***	1.950***	

JudicialHellHole	(0.031)	(0.044)	(0.034)	(0.030)		(0.290)	(0.231)	(0.370)	(0.513)	
Other keyword ×	0.002	-0.011	-0.000	0.010		-0.039	-0.035	-0.039	0.132	
AvMalpPayout	(0.006)	(0.007)	(0.009)	(0.010)		(0.053)	(0.057)	(0.108)	(0.127)	
Other keyword ×	0.018	0.137***	-0.065	-0.099**		0.355	0.919**	-0.595	-0.900**	
ManyBidders	(0.042)	(0.039)	(0.040)	(0.040)		(0.365)	(0.393)	(0.393)	(0.379)	
Observations	12048	12048	12048	12048	12048	12055	12055	12055	12055	12055
R-Squared	0.89	0.89	0.89	0.89	0.89	0.82	0.82	0.82	0.82	0.81

Dependent variable: midpoint of the keyword's estimated cost per click, logged in columns 1-5 and linear in columns 6-10. Robust standard errors clustered at the keyword level are given in parentheses. All regressions include a full set of fixed effects for each city and each keyword. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

^a*Other keyword* varies by column is the alternative keyword group labeled in rows 2-5.

Online Table 7: Alternative specification of Table 8 without controls

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Logged	Logged	Logged	Logged	Logged	Linear	Linear	Linear	Linear	Linear
Personal injury keyword <i>and</i> law restricting solicitation	0.047** (0.023)	0.051** (0.021)	0.050** (0.021)	0.051** (0.021)	0.037* (0.023)	1.107*** (0.308)	1.007*** (0.298)	1.016*** (0.304)	1.004*** (0.300)	1.142*** (0.325)
Civil Case Keyword <i>and</i> law restricting solicitation	-0.010 (0.015)				-0.021 (0.019)	0.191 (0.120)				0.226 (0.137)
Divorce Law keyword <i>and</i> law restricting solicitation		-0.008 (0.013)			-0.022 (0.017)		-0.117 (0.098)			0.013 (0.092)
Felony Crime Keyword <i>and</i> law restricting solicitation			-0.017 (0.014)		-0.028 (0.021)			0.024 (0.152)		0.204 (0.214)
Misdemeanor keyword <i>and</i> law restricting solicitation				-0.011 (0.020)	-0.004 (0.025)				-0.101 (0.210)	-0.118 (0.297)
Observations	12264	12264	12264	12264	12264	12271	12271	12271	12271	12271
R-Squared	0.89	0.89	0.89	0.89	0.89	0.81	0.81	0.81	0.81	0.81

Dependent variable: midpoint of the keyword's estimated cost per click, logged in columns 1-5 and linear in columns 6-10. Robust standard errors clustered at the keyword level are given in parentheses. All regressions include a full set of fixed effects for each city and each keyword. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Online Table 8: Full Set of Coefficients for Table 9

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Logged <1 Million	Logged >1 Million Pop	Logged Low Search Volume	Logged High Search volume	Linear <1 Million	Linear >1 Million Pop	Linear Low Search Volume	Linear High Search volume
Personal injury keyword <i>and</i> law restricting solicitation	0.106** (0.045)	0.034** (0.014)	0.072*** (0.025)	0.013 (0.023)	1.955*** (0.636)	0.401* (0.212)	1.155*** (0.362)	1.322*** (0.102)
Search Volume	-0.021 (0.050)	-0.112*** (0.025)	-0.129*** (0.032)	-0.057 (0.041)	-0.899** (0.443)	-1.309*** (0.291)	-1.474*** (0.460)	-0.118 (0.293)
ManyBidders	0.093*** (0.023)	-0.029 (0.035)	0.045** (0.022)	0.243*** (0.045)	0.627*** (0.145)	-0.466 (0.366)	0.407* (0.208)	0.516* (0.257)
Personal injury keyword × SearchVolume	-0.004 (0.086)	0.101*** (0.037)	0.055 (0.039)	-0.056 (0.046)	2.248 (1.616)	2.543*** (0.574)	2.685*** (0.667)	1.403*** (0.169)
Personal injury keyword × GSP	0.554** (0.254)	0.230* (0.119)	0.577*** (0.205)	-0.033 (0.119)	11.252*** (4.084)	6.604*** (1.440)	10.641*** (3.066)	4.215*** (0.563)
Personal injury keyword × CivilCasestoPop	-0.827* (0.494)	-0.465** (0.202)	-0.661** (0.303)	-0.374 (0.245)	-14.206** (6.320)	-11.301*** (2.723)	-9.659** (3.898)	-13.101*** (1.345)
Personal injury keyword × MSALawOfftoPop	-0.007* (0.004)	-0.014** (0.006)	-0.001 (0.002)	-0.001 (0.001)	-0.058 (0.059)	0.017 (0.103)	-0.021 (0.024)	0.021*** (0.004)
Personal injury keyword × JudicialHellHole	0.312* (0.172)	-0.045 (0.033)	-0.048 (0.035)	-0.015 (0.026)	3.263 (2.667)	-0.447 (0.472)	0.296 (0.540)	-0.520*** (0.151)
Personal injury keyword × AvMalpPayout	-0.033*** (0.012)	-0.002 (0.007)	-0.021** (0.008)	-0.009 (0.005)	-0.606*** (0.174)	-0.100 (0.107)	-0.331*** (0.122)	-0.391*** (0.031)
Personal injury keyword × ManyBidders	-0.102*** (0.039)	0.012 (0.048)	-0.045 (0.032)	-0.288*** (0.056)	-0.323 (0.610)	0.343 (0.668)	-0.166 (0.485)	-1.996*** (0.299)
Observations	6624	5424	9622	2426	6629	5426	9629	2426
R-Squared	0.90	0.90	0.86	0.96	0.80	0.86	0.80	0.95

Dependent variable: midpoint of the keyword's estimated cost per click, logged in columns 1-3 and linear in columns 4-6. Robust standard errors clustered at the keyword level are given in parentheses. All regressions include a full set of fixed effects for each city and each keyword. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Online Table 9: Alternative specification of Table 9 without controls

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Logged <1 Million	Logged >1 Million Pop	Logged Low Search Volume	Logged High Search volume	Linear <1 Million	Linear >1 Million Pop	Linear Low Search Volume	Linear High Search volume
Personal injury keyword <i>and</i> law restricting solicitation	0.078** (0.036)	0.012 (0.011)	0.058*** (0.021)	0.012 (0.022)	1.542*** (0.511)	0.307* (0.166)	0.886*** (0.292)	1.153*** (0.094)
Observations	6690	5574	9787	2477	6695	5576	9794	2477
R-Squared	0.90	0.90	0.86	0.96	0.79	0.86	0.80	0.95

Final Robustness Check

As a further “reality check,” we reran our regressions using two other regulations directed at curbing aggressive behavior by lawyers. The first is an advertising regulation that does not apply specifically to personal injury lawyers: Specialization disclosure requirements. States with these regulations require a disclosure that the state does not certify or recognize lawyers in specialty practices when lawyers advertise themselves as experts in a field of practice.¹ Like the solicitation restrictions, this is meant to temper the excesses of lawyer advertising. However, it applies to both online and offline advertising. Furthermore, unlike solicitation restrictions, it does not apply only to personal injury lawyers (e.g. divorce lawyers cannot advertise themselves as specializing in divorces without a disclaimer). Therefore, the regulation itself should not affect personal injury lawyers differently from other lawyers. If the endogeneity of the “ambulance-chaser” regulations explains our results, then we would also expect such rules to be associated with a positive effect on personal injury keyword prices. As expected, because the regulation applies to all groups, Online Table 10 shows that it does not affect personal injury keywords in a different way from how it affects other keywords.

The second type of regulation is directed at curbing aggressive personal injury lawyer behavior directly through their expected income from the case: Regulations that restrict the use of contingency fees. A contingency fee is payable only in the case of a favorable result. While there is substantial variation in the specifics of the contingency fee regulations, they all ultimately limit how profitable it is to represent a personal injury client.² Thus, in contrast to solicitation restrictions, we expect the restrictions on contingency fees to *decrease* keyword prices. Again, as expected, Online Table 10 shows that contingency fees have a negative impact on keyword prices for personal injury keywords, while rules restricting the advertising of specialties do not have a differential effect.

¹ There are specialization disclosure requirements in Colorado, Illinois, Iowa, Kansas, Massachusetts, Mississippi, Missouri, Nevada, Rhode Island, South Dakota, Texas, Utah, Washington, West Virginia, and Wyoming.

² There are contingency fee restrictions in Alaska, Illinois, Maine, Nebraska, Oklahoma, and Wisconsin.

Online Table 10: Further controls

	(1) Logged	(2) Logged	(3) Logged	(4) Linear	(5) Linear	(6) Linear
Personal injury keyword <i>and</i> law restricting solicitation			0.045** (0.021)			0.920*** (0.295)
Personal injury keyword <i>and</i> law restricting advertising of specialties	-0.035 (0.023)		-0.030 (0.022)	-0.505 (0.313)		-0.408 (0.289)
Personal injury keyword <i>and</i> law restricting contingency fees		-0.165*** (0.050)	-0.140*** (0.045)		-3.068*** (0.800)	-2.563*** (0.722)
SearchVolume	0.017*** (0.006)	0.016*** (0.006)		0.018 (0.056)	0.014 (0.056)	
ManyBidders	0.051** (0.022)	0.052** (0.022)	0.051** (0.022)	0.351* (0.184)	0.373** (0.187)	0.365** (0.184)
Personal injury keyword * SearchVolume	-0.020 (0.040)	-0.030 (0.040)	-0.026 (0.039)	1.869*** (0.593)	1.687*** (0.594)	1.660*** (0.583)
Personal injury keyword * GSP	0.567*** (0.215)	0.498*** (0.177)	0.615*** (0.230)	11.403*** (3.219)	10.392*** (2.707)	12.270*** (3.439)
Personal injury keyword * CivilCasestoPop	-0.673* (0.350)	-0.833** (0.345)	-1.012** (0.432)	-11.836** (4.549)	-15.563*** (4.811)	-17.978*** (5.956)
Personal injury keyword * MSALawOfftoPop	0.000 (0.002)	-0.001 (0.002)	-0.002 (0.001)	0.008 (0.027)	-0.016 (0.025)	-0.033 (0.024)
Personal injury keyword * JudicialHellHole	-0.051 (0.047)	-0.036 (0.040)	-0.036 (0.044)	-0.075 (0.709)	0.135 (0.607)	0.232 (0.660)
Personal injury keyword * AvMalpPayout	-0.022** (0.008)	0.004 (0.007)	-0.005 (0.009)	-0.355*** (0.126)	0.114 (0.105)	-0.053 (0.129)
Personal injury keyword * ManyBidders	-0.051 (0.033)	-0.053 (0.032)	-0.052 (0.032)	-0.138 (0.510)	-0.165 (0.495)	-0.170 (0.496)
Observations	12048	12048	12048	12055	12055	12055
R-Squared	0.89	0.89	0.89	0.81	0.82	0.82

Dependent variable: midpoint of the keyword's estimated cost per click, logged in columns 1-3 and linear in columns 4-6. Robust standard errors clustered at the keyword level are given in parentheses. All regressions include a full set of fixed effects for each city and each keyword. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.