

Supplemental Information Appendix

Convenience, Viability, and Access: Traditional Urgent Care in the United States

Table SI1: Summary Statistics

Measure	Mean	Std. Dev.	Minimum	Maximum
<i>Panel A. Census tracts (N = 72,514)</i>				
Number of traditional urgent care centers	0.110	0.351	0	6
Number of limited urgent care facilities	0.046	0.223	0	4
Number of emergency departments	0.059	0.241	0	4
Number of shortage locations	0.059	0.285	0	7
Primary-care shortage score	0.891	4.471	0	109
Urban area	0.681	0.447	0	1
Urban cluster	0.076	0.265	0	1
Private health insurance, scaled 0–10	6.577	1.874	0	10
Medicaid proxy, scaled 0–10	1.572	2.264	0	10
Age 65 or older, scaled 0–10	1.584	0.812	0	10
<i>Panel B. Counties (N = 3,108)</i>				
Number of traditional urgent care centers	2.558	7.541	0	170
Number of limited urgent care facilities	1.081	3.538	0	102
Number of emergency departments	1.338	2.075	0	45
Number of shortage locations	1.151	2.122	0	65
Primary-care shortage score	17.393	35.725	0	1,107
Metropolitan county	0.374	0.484	0	1
Micropolitan county	0.210	0.408	0	1
Private health insurance, scaled 0–10	6.560	1.046	1.52	9.37
Medicaid proxy, scaled 0–10	2.035	1.347	0	10
Age 65 or older, scaled 0–10	1.843	0.454	0.38	5.56

Source: National Urgent Care Realty, American Community Survey, Centers for Medicare & Medicaid Services Hospital General Information, and Health Resources and Services Administration.

Notes: Panel (A) is summary statistics for all census tracts reported by the Census Bureau for the contiguous United States. Panel (B) is summary statistics for all counties reported. Census tracts are defined as urban area or urban cluster using Census Bureau definitions. Counties are defined as metropolitan or micropolitan using Census Bureau definitions.

Table SI2: Zero-Inflated Negative Binomial Models of Traditional Urgent Care

	Census Tract		County	
	Count	Inflated	Count	Inflated
	(1) <i>Coef./SE</i>	(2) <i>Coef./SE</i>	(3) <i>Coef./SE</i>	(4) <i>Coef./SE</i>
Limited Urgent Care	0.394*** (0.072)	-0.873*** (0.321)	0.034** (0.014)	-1.789*** (0.567)
Emergency Department	0.548*** (0.067)	-1.065*** (0.298)	0.197*** (0.020)	-2.482*** (0.490)
Primary-Care Shortage	0.020*** (0.004)	-0.609* (0.351)	0.001 (0.001)	-0.663** (0.311)
Urban Area / Metro	0.821*** (0.246)	-1.175* (0.679)	1.861*** (0.224)	0.568 (0.769)
Urban Cluster / Micro	0.520** (0.248)	-2.473*** (0.483)	0.981*** (0.140)	-2.398*** (0.736)
Private Health Insurance	0.030 (0.205)	-0.045 (0.398)	0.242*** (0.060)	-3.946** (1.534)
Private Health Insurance ²	– (0.042)	-0.077+ (0.042)	–	0.271* (0.119)
Medicaid Proxy	-0.012 (0.011)	-0.169*** (0.064)	-0.048 (0.041)	-1.021* (0.477)
Medicaid Proxy ²	– (0.006)	0.017 (0.006)	–	0.220*** (0.062)
Age 65+	0.006 (0.041)	-0.362 (0.338)	-0.377*** (0.116)	11.574** (4.171)
Age 65+ ²	– (0.031)	0.086** (0.031)	–	-2.201* (0.895)
Observations	72,514		3,108	
Non-zero observations	7,107		1,488	
Zero observations	65,407		1,620	
Dependent Variable Mean	1.118	0.098	5.342	0.479
State fixed effects	Yes	Yes	Yes	Yes

Source: National Urgent Care Realty, 2019. *Notes:* Columns (1) and (3) report the count component of a zero-inflated negative binomial model, where the dependent variable is the number of traditional urgent care centers. Columns (2) and (4) report the inflation component, which models the probability that an observation belongs to the always-zero group (i.e., structural absence of a traditional urgent care center). Census-tract models include indicators for urban area and urban cluster, while county models include metropolitan and micropolitan designations. All specifications additionally control for private health insurance coverage, the Medicaid proxy, the share of the population aged 65 years and older, and state fixed effects. Standard errors are clustered at the state level. *** $p < 0.005$, ** $p < 0.01$, * $p < 0.05$. + $p < 0.10$.

Table SI3.1: Traditional Urgent Care Location Models by Chain Size, Census Tract

	Only 1 Location		2–4 Locations		5–9 Locations		10+ Locations	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Presence	Count	Presence	Count	Presence	Count	Presence	Count
	<i>Coef./SE</i>	<i>Coef./SE</i>	<i>Coef./SE</i>	<i>Coef./SE</i>	<i>Coef./SE</i>	<i>Coef./SE</i>	<i>Coef./SE</i>	<i>Coef./SE</i>
Limited Urgent Care	0.198*** (0.063)	0.032+ (0.019)	0.287*** (0.073)	0.001 (0.021)	0.643*** (0.174)	0.035+ (0.019)	0.555*** (0.080)	-0.025 (0.033)
Emergency Department	0.893*** (0.061)	0.023 (0.020)	1.038*** (0.087)	0.009 (0.011)	0.764*** (0.125)	-0.023 (0.023)	0.955*** (0.076)	0.002 (0.039)
Primary-Care Shortage	0.496*** (0.105)	0.000 (0.000)	0.282+ (0.158)	0.000 (0.001)	0.707*** (0.154)	-0.001* (0.000)	0.512* (0.200)	-0.002+ (0.001)
Urban Area	1.159*** (0.156)	0.034*** (0.009)	1.002*** (0.099)	0.011 (0.010)	1.442*** (0.147)	0.005 (0.010)	1.763*** (0.145)	-0.001 (0.033)
Urban Cluster	1.272*** (0.147)	0.025 (0.015)	1.061*** (0.106)	0.017 (0.014)	0.946*** (0.125)	-0.024 (0.015)	1.094*** (0.097)	-0.002 (0.014)
Private Health Insurance	0.233*** (0.047)	0.004+ (0.002)	0.282* (0.128)	0.005 (0.003)	0.208* (0.098)	-0.005 (0.004)	0.323+ (0.187)	0.049* (0.023)
Private Health Insurance ²	-0.015* (0.007)	– –	-0.012 (0.009)	– –	-0.005 (0.011)	– –	-0.012 (0.012)	– –
Medicaid Proxy	0.023 (0.022)	-0.001 (0.001)	-0.009 (0.027)	0.000 (0.001)	0.028 (0.028)	0.085 (0.001)	-0.000 (0.167)	-0.001 (0.002)
Medicaid Proxy ²	-0.006* (0.003)	– –	0.001 (0.003)	– –	-0.004 (0.004)	– –	-0.005* (0.003)	– –
Age 65+	0.007 (0.113)	-0.003 (0.003)	-0.151 (0.095)	0.001 (0.005)	-0.200 (0.169)	-0.012+ (0.007)	-0.012 (0.067)	-0.016 (0.010)
Age 65+ ²	-0.018 (0.019)	– –	0.017 (0.014)	– –	0.018 (0.021)	– –	-0.019+ (0.010)	– –
Observations	72,335	1,933	72,514	2,072	72,151	1,711	72,514	6,604
Dependent Variable Mean	0.027	1.02	0.029	1.032	0.024	1.044	0.091	1.168
State Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Source: National Urgent Care Realty (NUCR), 2019. *Notes:* The dependent variable in columns (1), (3), (5), and (7) is an indicator for the presence of a traditional urgent care center. The dependent variable in columns (2), (4), (6), and (8) is the count of traditional urgent care center. Columns (1)–(2) include census tracts that contain traditional urgent care chains with only one location; columns (3)–(4) include chains with 2–4 locations; columns (5)–(6) include chains with 5–9 locations; and columns (7)–(8) include chains with 10 or more locations. Each model includes indicators for urban-area and urban-cluster designation and census-tract measures of private health insurance, Medicaid proxy, and age 65 and older. All specifications include state fixed effects. Urban areas and urban clusters are defined using U.S. Census Bureau classifications. Standard errors are clustered at the state level. *** $p < 0.005$, ** $p < 0.01$, * $p < 0.05$. + $p < 0.10$.

Table SI3.2: Traditional Urgent Care Location Models by Chain Size, County

	Only 1 Location		2–4 Locations		5–9 Locations		10+ Locations	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Presence	Count	Presence	Count	Presence	Count	Presence	Count
	<i>Coef./SE</i>	<i>Coef./SE</i>	<i>Coef./SE</i>	<i>Coef./SE</i>	<i>Coef./SE</i>	<i>Coef./SE</i>	<i>Coef./SE</i>	<i>Coef./SE</i>
Limited Urgent Care	-0.012 (0.270)	0.121*** (0.020)	0.581** (0.212)	0.121*** (0.016)	0.248 (0.233)	0.041 (0.046)	0.512*** (0.157)	0.034* (0.014)
Emergency Department	2.091*** (0.327)	0.229*** (0.035)	1.268*** (0.294)	0.193*** (0.035)	1.467*** (0.286)	0.241*** (0.047)	1.935*** (0.238)	0.173*** (0.021)
Primary-Care Shortage	0.373+ (0.202)	0.000 (0.002)	0.355+ (0.182)	-0.001 (0.001)	0.158 (0.176)	0.000 (0.002)	0.521*** (0.150)	0.002 (0.001)
Metro	1.789*** (0.274)	0.448*** (0.100)	2.021*** (0.264)	0.553*** (0.067)	1.777*** (0.318)	0.612*** (0.099)	2.286*** (0.240)	0.681*** (0.091)
Micro	2.243*** (0.224)	0.221*** (0.077)	1.832*** (0.249)	0.236*** (0.073)	1.043*** (0.269)	0.273* (0.118)	2.057*** (0.238)	0.107+ (0.059)
Private Health Insurance	0.309 (0.933)	0.022 (0.045)	0.893 (0.597)	0.037 (0.054)	1.721 (1.078)	0.098 (0.096)	2.489*** (0.659)	0.239*** (0.058)
Private Health Insurance ²	0.018 (0.075)	– –	-0.047 (0.046)	– –	-0.109 (0.083)	– –	-0.147** (0.052)	– –
Medicaid Proxy	0.757*** (0.219)	-0.046 (0.036)	0.888*** (0.284)	0.031 (0.041)	0.666+ (0.354)	-0.056 (0.049)	0.331+ (0.190)	-0.017 (0.038)
Medicaid Proxy ²	-0.173*** (0.049)	– –	-0.200*** (0.062)	– –	-0.141* (0.065)	– –	-0.082* (0.039)	– –
Age 65+	-3.012*** (0.969)	-0.241*** (0.055)	-3.060*** (0.889)	-0.219* (0.089)	-3.301* (1.519)	-0.155 (0.098)	-4.444*** (1.235)	-0.386*** (0.070)
Age 65+ ²	0.634*** (0.221)	– –	0.584** (0.226)	– –	0.624 (0.380)	– –	0.801** (0.294)	– –
Observations	1,839	284	1,894	299	1,628	186	2,324	792
Dependent Variable Mean	0.153	2.092	0.154	2.709	0.114	2.468	0.331	6.158
State Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Source: National Urgent Care Realty, 2019. *Notes:* The dependent variable in columns (1), (3), (5), and (7) is an indicator for the presence of a traditional urgent care center. The dependent variable in columns (2), (4), (6), and (8) is the number of traditional urgent care centers. Columns (1)–(2) include counties classified as having predominantly one traditional urgent care location; columns (3)–(4) include counties classified as having two to four locations; columns (5)–(6) include counties classified as having five to nine locations; and columns (7)–(8) include counties classified as having ten or more locations. All models include metropolitan and micropolitan indicators, private health insurance coverage, the Medicaid proxy, and age 65 and older. All specifications include state fixed effects. Metropolitan and micropolitan counties are defined using U.S. Census Bureau classifications. Standard errors are clustered at the state level. *** $p < 0.005$, ** $p < 0.01$, * $p < 0.05$. + $p < 0.10$.

Table SI4: Spatial Exclusive Models of Traditional Urgent Care Location

	Census Tract		County	
	Presence (1) <i>Coef./SE</i>	Count (2) <i>Coef./SE</i>	Presence (3) <i>Coef./SE</i>	Count (4) <i>Coef./SE</i>
Limited Urgent Care	-0.436+ (0.262)	-0.058 (0.036)	0.098*** (0.030)	-0.203 (0.229)
Emergency Department	-0.645*** (0.200)	-0.144*** (0.042)	0.053 (0.034)	-0.669 (0.436)
Primary-Care Shortage	-0.076*** (0.018)	0.002 (0.002)	0.032 (0.030)	-0.005 (0.018)
Private Health Insurance	0.331*** (0.038)	0.016*** (0.003)	-0.020 (0.015)	-0.253 (0.195)
Medicaid Proxy	-0.036+ (0.020)	0.001 (0.006)	-0.049*** (0.012)	0.128 (0.147)
Age 65+	0.026 (0.041)	-0.016* (0.006)	0.060*** (0.023)	0.439 (0.393)
Spatial TUC	-1.158*** (0.425)	-0.089* (0.042)	0.405*** (0.044)	1.375*** (0.187)
Spatial Error Parameter (ρ)	— —	— —	-0.460*** (0.064)	-0.751*** (0.182)
Observations	72,514	7,107	3,108	1,488
Dependent Variable Mean	0.098	1.118	0.479	5.342
State fixed effects	Yes	Yes	Yes	Yes
Wald Test of Spatial Terms	—	—	245.80***	253.00***

Source: National Urgent Care Realty, 2019. *Notes:* The dependent variable in columns (1) and (3) is an indicator for the presence of a traditional urgent care center. The dependent variable in columns (2) and (4) is the number of traditional urgent care centers. Columns (1)–(2) report census-tract estimates, and columns (3)–(4) report county-level estimates. All models include controls for urban or cluster designation in the census-tract specifications and metropolitan and micropolitan status in the county specifications. The census-tract spatial weights are row-normalized and constructed using inverse-distance weighting with a 15-kilometer cutoff and an alpha parameter of 0.50. The county spatial weights use a first-order queen-contiguity matrix. The county models include a spatially autoregressive error process. All models include state fixed effects. Standard errors are clustered at the state level. *** $p < 0.005$, ** $p < 0.01$, * $p < 0.05$. + $p < 0.10$.

Table SI5: Average Direct, Indirect, and Total Effects: County Spatial Presence Model

	Direct Effect <i>Coef./SE</i>	Indirect Effect <i>Coef./SE</i>	Total Effect <i>Coef./SE</i>
Limited Urgent Care	0.066*** (0.016)	0.136*** (0.045)	0.202*** (0.047)
Emergency Department	0.214*** (0.017)	-0.041 (0.054)	0.173*** (0.057)
Primary-Care Shortage	0.041** (0.015)	-0.003 (0.047)	0.038 (0.050)
Metropolitan County	0.323*** (0.019)	0.226*** (0.039)	0.550*** (0.045)
Micropolitan County	0.305*** (0.019)	0.214*** (0.038)	0.519*** (0.046)
Private Health Insurance	0.059*** (0.011)	-0.094*** (0.026)	-0.034 (0.026)
Medicaid Eligibility Proxy	-0.001 (0.007)	-0.052** (0.019)	-0.053** (0.020)
Age 65+	-0.190*** (0.021)	0.211*** (0.043)	0.021 (0.042)
Observations		3,108	
State Fixed Effects		Yes	

Source: National Urgent Care Realty, 2019. *Notes:* Estimates are the average impacts of the county spatial presence model. Direct effects summarize the average effect within the county, including spatial feedback. Indirect effects summarize average spillovers to other counties. Total effects equal the sum of the direct and indirect effects. The model contains a spatial lag of traditional urgent care presence, spatial lags of selected explanatory variables, a spatially autoregressive error process, and state fixed effects. Private insurance coverage, the Medicaid eligibility proxy, and the age-65-and-older share enter quadratically; reported impacts combine the linear and quadratic terms. Delta-method standard errors. *** $p < 0.005$, ** $p < 0.01$, * $p < 0.05$, + $p < 0.10$.

Table SI6: Multilevel Models of Traditional Urgent Care

	Census Tract		County	
	Presence (1) <i>Coef./SE</i>	Count (2) <i>Coef./SE</i>	Presence (3) <i>Coef./SE</i>	Count (4) <i>Coef./SE</i>
Limited Urgent Care	0.361*** (0.046)	0.036+ (0.018)	0.477*** (0.135)	0.033* (0.014)
Emergency Department	0.904*** (0.050)	0.086*** (0.016)	1.612*** (0.195)	0.170*** (0.018)
Primary-Care Shortage	0.139* (0.059)	0.000 (0.001)	0.350*** (0.099)	0.000 (0.001)
Urban Area / Metro	1.168*** (0.048)	0.071*** (0.012)	2.075*** (0.194)	0.941*** (0.076)
Urban Cluster / Micro	1.229*** (0.058)	0.030* (0.015)	1.837*** (0.161)	0.198*** (0.040)
Private Health Insurance	0.677*** (0.078)	0.016*** (0.003)	1.484** (0.546)	0.137*** (0.044)
Private Health Insurance ²	-0.034*** (0.006)	— —	-0.086* (0.043)	— —
Medicaid Proxy	0.042* (0.018)	0.003 (0.002)	0.567*** (0.157)	-0.069* (0.030)
Medicaid Proxy ²	-0.007*** (0.002)	— —	-0.131*** (0.032)	— —
Age 65+	0.207*** (0.052)	-0.008+ (0.005)	-3.470*** (0.931)	-0.324*** (0.091)
Age 65+ ²	-0.040*** (0.010)	— —	0.662*** (0.208)	— —
Observations	72,514	7,107	3,070	1,488
State groups	49	49	49	49
County groups	3,107	1,487	—	—
Dependent Variable Mean	0.098	1.118	0.479	5.342
State Fixed Effects	Yes	Yes	Yes	Yes

Source: National Urgent Care Realty, 2019. *Notes:* The dependent variable in columns (1) and (3) is an indicator for the presence of a traditional urgent care center. The dependent variable in columns (2) and (4) is the number of traditional urgent care centers. Columns (1)–(2) report census-tract-level models with census tracts nested within counties and states. Columns (3)–(4) report county-level models with counties grouped by state. All specifications include indicators for urban area and urban cluster in the census-tract models or metropolitan and micropolitan status in the county models, along with private health insurance, the Medicaid proxy, and the share of the population age 65 or older measured at the corresponding geographic level. ACS controlled scaled from 0 to 10. Census-tract urban areas and urban clusters, and county metropolitan and micropolitan classifications, follow U.S. Census Bureau definitions. Standard errors are robust. *** $p < 0.005$, ** $p < 0.01$, * $p < 0.05$, + $p < 0.10$.