Appendix

Variables. From LTCfocUS, we also obtained several facility-level, annualized timevarying covariates that were included in our prediction model based on their relationship to lowcare status or the provision of care in nursing homes found in other studies: proportion of days paid for under the Medicare skilled nursing (SNF) benefit; proportion of Medicaid residents; occupancy rate; and percent of admissions paid for under a Medicare Advantage plan. At the market-level, defined by county boundaries, we controlled for home care capacity using the number of home health agencies per 1000 people aged 65+ in the county, and nursing home market concentration using the Herfindahl Index. At the state level, we controlled for Medicaid long-term care spending on Home and Community Based Services (HCBS -- a sum of total expenditures on home health, personal care services, Aged and Disabled Waivers, 1915c Waivers, 1115 Waivers and 1915J Waivers) per capita and the Medicaid nursing home payment rate adjusted to 2009 dollars.

Sample. The sample includes a total of 71,984 facility-year observations from 15,034 free-standing certified nursing homes in the continental US. Facilities that were hospital-based were excluded from the analyses because they are very different in terms of resident severity, structure, and care practice. The facility had to be operating at least one full year to be included in the study.

Analyses. For our core analysis, we used a two-way (year and facility) fixed effects model to estimate the relationship between the proportion of older adults receiving home-delivered meals and the proportion of low-care nursing home residents. Huber-White robust variance estimators were applied to adjust for within-state clustering over time and the facility-year is the unit of analysis.

APPENDIX EXHIBIT A1

Results from Multivariate Analyses

	Coef.	Std. Err.	P>t
Facility Characteristics			
Percent of residents funded by Medicaid	0.01	0.003	0.00
Ratio of registered nurse to total licensed nurse	0.01	0.227	0.99
Certified nursing assistant hours per resident day	-0.10	0.029	0.00
Occupancy rate	0.03	0.003	0.00
Percent of nursing home days that are covered under the Skilled Nursing benefit	-0.10	0.005	0.00
Percent of admissions that are covered under Medicare Advantage Plans	-0.03	0.004	0.00
Market Characteristics			
Home health agencies per 1000 65+	-0.09	0.151	0.54
Herfindahl Index	0.29	0.232	0.20
State Characteristics			
Number receiving home-delivered meals adjusted for population 65+	-0.19	0.076	0.01
Adjusted Medicaid payment rate	0.01	0.005	0.09
Medicaid long-term care expenditures on home and community based services per capita	-0.01	0.004	0.06

SOURCE: 2009 LTCfocUS and 2009 Older Americans Act State Program Report Data

NOTES: Medicaid Expenditures on HCBS per Capita was divided by 10 for ease of interpretation.

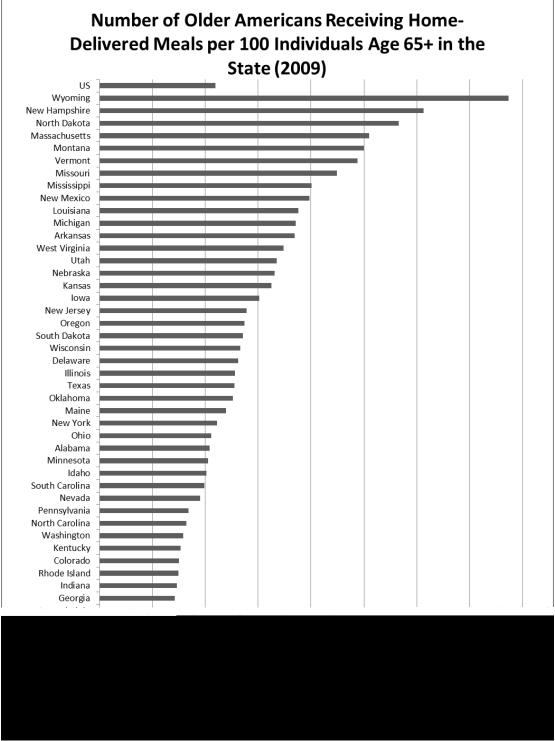
N=15,034 nursing homes and 71,984 facility year observations.

Robust standard errors adjusted for clustering within facility. Year and facility dummy variables not shown. The first year, 2005, was the reference.

Coef= Coefficient; Std. Err.= Standard Error;

APPENDIX EXHIBIT A2

Number of Older Americans Receiving Home-Delivered Meals per 100 Individuals Age 65+ in the State (2009)



SOURCE: 2009 LTCfocUS (Area Resource File) and 2009 Older Americans Act State Program Report Data

APPENDIX EXHIBIT A3

Descriptive Characteristics of Sample (2009)

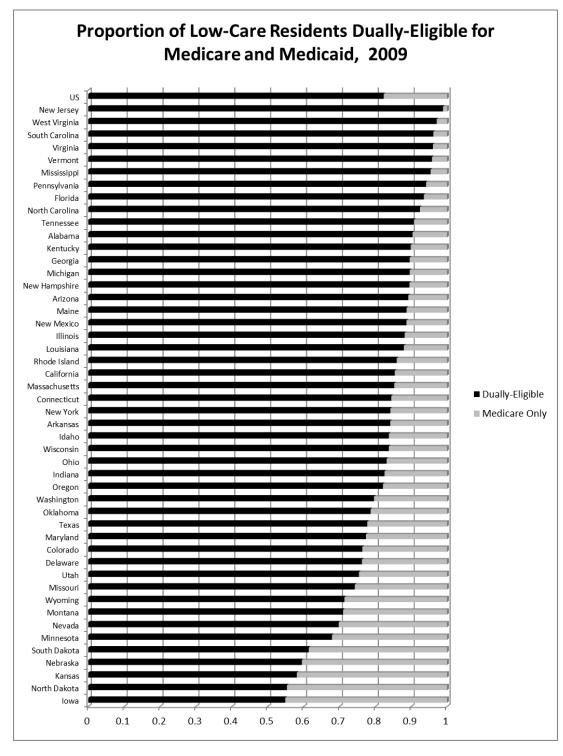
	Mean	(SD)
Facility Characteristics		
Percent of residents classified "low care"	12.89	11.75
Percent of residents funded by Medicaid	61.43	21.75
Ratio of registered nurse to total licensed nurse	0.29	0.18
Certified nursing assistant hours per resident day	2.23	1.23
Occupancy rate	83.43	15.08
Percent of nursing home days that are covered under the Skilled Nursing benefit	17.79	14.94
Percent of admissions that are covered under Medicare Advantage Plans	13.15	12.0 ²
Market Characteristics		
Home health agencies per 1000 65+	0.36	0.45
Herfindahl Index	0.6	0.33
State Characteristics		
Medicaid long-term care expenditures on home and community based services per capita	\$24	\$1 ₄
Adjusted Medicaid payment rate	\$159	\$2

SOURCE: 2009 LTCfocUS and 2009 Older Americans Act State Program Report Data

NOTES: SD = Standard Deviation

APPENDIX EXHIBIT A4

State-by-State Comparison of the Proportion of Low Care Residents who are Dually Eligible for Medicare and Medicaid, 2009



SOURCE: 2009 Minimum Data Set and 2009 Medicare Enrollment Records

APPENDIX EXHIBIT A5

State-by-State Comparisons of Estimated Savings from Increasing the Number of Older Adults age 65+ Receiving Meals by 1%, 2009

	Number of Low-Care Dually-Eligible Residents Not in Nursing Home from a 1% Increase in the Number Receiving Meals Adjusted for the Population 65+	Adjusted Average Medicaid Per Diem in 2009	Amount Potentially Saved by Medicaid Annually by Increasing the Number Receiving Meals adjusted for the Population 65+	New Clients Served with a 1% Increase in Home- Delivered Meals	Additional Title III-C2 Funding Required Annually to Increase the Number of New Clients Served	Estimated Total Yearly Savings
Pennsylvania	114	\$189	\$7,851,807	19,463	\$2,122,958	\$5,728,849
New York	137	\$229	\$11,427,143	26,198	\$5,905,190	\$5,521,953
Massachusetts	53	\$195	\$3,766,472	8,945	\$1,752,956	\$2,013,516
Ohio	94	\$167	\$5,738,348	16,053	\$4,017,827	\$1,720,521
New Jersey	62	\$174	\$3,939,430	11,730	\$2,288,450	\$1,650,980
Minnesota	34	\$163	\$2,018,114	6,711	\$967,373	\$1,050,741
Illinois	90	\$117	\$3,857,904	15,945	\$3,004,487	\$853,417
Wisconsin	41	\$163	\$2,436,152	7,613	\$1,599,587	\$836,565
Missouri	41	\$126	\$1,887,386	8,224	\$1,073,377	\$814,009
Louisiana	31	\$134	\$1,514,739	5,543	\$766,781	\$747,958
Michigan	53	\$160	\$3,096,748	13,398	\$2,481,102	\$615,646
Arkansas	22	\$144	\$1,153,028	4,137	\$642,679	\$510,349
Mississippi	22	\$176	\$1,413,682	3,769	\$940,932	\$472,749
New Hampshire	11	\$195	\$782,805	1,792	\$331,314	\$451,491
lowa	23	\$126	\$1,058,610	4,443	\$721,586	\$337,024
Kansas	17	\$135	\$838,978	3,675	\$516,153	\$322,825
New Mexico	8	\$175	\$509,721	2,613	\$205,620	\$304,102
Nebraska	12	\$120	\$527,615	2,406	\$335,213	\$192,401
North Dakota	6	\$181	\$396,171	949	\$205,849	\$190,322

Montana	6	\$159	\$347,860	1,419	\$172,729	\$175,131
Rhode Island	11	\$186	\$748,757	1,506	\$644,717	\$104,041
Delaware	5	\$211	\$384,436	1,267	\$301,990	\$82,446
Wyoming	3	\$158	\$173,196	669	\$139,563	\$33,633
Utah	6	\$150	\$328,391	2,512	\$315,029	\$13,361
Vermont	5	\$181	\$330,179	899	\$324,065	\$6,114
Alabama	31	\$166	\$1,883,042	6,510	\$1,878,605	\$4,438
South Dakota	7	\$114	\$291,347	1,177	\$291,570	-\$224
Idaho	6	\$171	\$375,125	1,874	\$400,798	-\$25,673
South Carolina	25	\$148	\$1,346,668	6,232	\$1,403,221	-\$56,553
Maine	9	\$177	\$581,248	2,056	\$676,409	-\$95,161
West Virginia	15	\$172	\$941,684	2,876	\$1,057,469	-\$115,786
Colorado	20	\$175	\$1,274,653	5,336	\$1,420,686	-\$146,033
Connecticut	33	\$217	\$2,610,031	4,881	\$2,789,027	-\$178,996
Oklahoma	22	\$129	\$1,037,315	4,960	\$1,246,068	-\$208,753
Oregon	10	\$211	\$770,661	5,169	\$1,145,178	-\$374,517
North Carolina	52	\$157	\$2,972,078	11,920	\$3,357,012	-\$384,934
Kentucky	31	\$138	\$1,563,394	5,703	\$2,412,796	-\$849,403
Nevada	5	\$176	\$320,853	3,068	\$1,174,867	-\$854,013
Georgia	46	\$136	\$2,276,556	10,148	\$3,371,059	-\$1,094,503
Texas	101	\$122	\$4,510,433	25,392	\$5,711,061	-\$1,200,628
Washington	22	\$165	\$1,324,388	8,062	\$2,697,846	-\$1,373,458
Maryland	26	\$218	\$2,071,193	6,948	\$3,549,180	-\$1,477,988
Arizona	16	\$167	\$975,806	8,667	\$2,780,698	-\$1,804,893
Tennessee	42	\$147	\$2,259,335	8,410	\$4,064,431	-\$1,805,096
Indiana	47	\$151	\$2,592,978	8,286	\$4,456,440	-\$1,863,462
Virginia	40	\$150	\$2,193,358	9,601	\$4,105,286	-\$1,911,928
California	118	\$162	\$6,996,722	41,481	\$17,935,899	-\$10,939,178
Florida	91	\$192	\$6,393,555	31,958	\$17,865,574	-\$11,472,019
US	1,722		\$104,090,095	392,594	\$117,568,707	-\$13,478,617

SOURCE: 2009 data from Older Americans Act State Program Reports, LTCfocUS.org, and the Medicare Enrollment Records

NOTES: We assumed that the average Title III-C2 spending on home-delivered meals per client reported in 2009 would be the same for the additional clients served by the program. We also assumed the Medicaid payment for each dually-eligible low-care resident would be the state average 2009 Medicaid payment rate.

APPENDIX EXHIBIT A6

Sensitivity Analysis Results: State-by-State Comparisons of Estimated Savings from Increasing the Number of Older Adults age 75+ Receiving Meals by 1%, 2009

	Number of Low Care Dually-Eligible Residents Not in Nursing Home from a 1% increase in the Number Receiving Meals Adjusted for the Population 75+	Adjusted Average Medicai d Per Diem in 2009	Amount Potentially Saved by Medicaid Per Year by Increasing the Number Receiving Meals adjusted for the Population 75+	New Clients Served with a 1% Increase in Home- Delivered Meals	Additional Title III-C2 Funding Required per Year for Increasing the Number of New Clients Served	Estimated Total Yearly Savings
Pennsylvania	50	\$188.70	\$3,463,507	9,808	\$1,069,843	\$2,393,664
New York	60	\$228.52	\$5,022,368	12,522	\$2,822,686	\$2,199,683
Massachusetts	23	\$194.70	\$1,656,227	4,457	\$873,497	\$782,730
New Jersey	27	\$174.08	\$1,731,159	5,724	\$1,116,667	\$614,492
Ohio	41	\$167.25	\$2,518,578	7,679	\$1,921,853	\$596,726
Minnesota	15	\$162.62	\$867,454	3,272	\$471,731	\$395,723
Louisiana	14	\$133.87	\$665,948	2,429	\$335,967	\$329,981
Missouri	18	\$126.12	\$817,735	3,848	\$502,215	\$315,520
Wisconsin	18	\$162.79	\$1,068,822	3,760	\$790,117	\$278,705
Illinois	39	\$117.44	\$1,688,463	7,561	\$1,424,652	\$263,811
Arkansas	10	\$143.59	\$504,550	1,836	\$285,294	\$219,255
Mississippi	10	\$176.05	\$616,413	1,639	\$409,213	\$207,201
New Hampshire	5	\$194.97	\$341,587	809	\$149,609	\$191,979
Michigan	23	\$160.08	\$1,358,444	6,325	\$1,171,289	\$187,156
New Mexico	3	\$174.56	\$207,085	1,165	\$91,648	\$115,438
Kansas	7	\$135.21	\$362,684	1,849	\$259,653	\$103,030
lowa	10	\$126.10	\$457,067	2,279	\$370,094	\$86,972
Montana	2	\$158.84	\$141,199	654	\$79,613	\$61,586
Nebraska	5	\$120.46	\$220,694	1,229	\$171,188	\$49,506
North Dakota	2	\$180.90	\$150,846	503	\$109,137	\$41,709

Delaware	2	\$210.65	\$158,945	560	\$133,395	\$25,550
Alabama	14	\$166.42	\$827,319	2,838	\$818,944	\$8,375
Wyoming	1	\$158.17	\$69,200	301	\$62,799	\$6,401
South Carolina	11	\$147.58	\$588,143	2,586	\$582,342	\$5,801
Utah	2	\$149.95	\$133,850	1,096	\$137,509	-\$3,659
Vermont	2	\$180.92	\$130,518	414	\$149,254	-\$18,736
Rhode Island	5	\$186.49	\$317,256	787	\$336,738	-\$19,482
South Dakota	3	\$114.03	\$117,511	590	\$146,199	-\$28,687
Idaho	2	\$171.29	\$149,254	837	\$178,978	-\$29,724
Maine	4	\$176.94	\$247,315	976	\$321,228	-\$73,913
Colorado	9	\$174.61	\$547,721	2,356	\$627,394	-\$79,673
West Virginia	6	\$172.00	\$395,383	1,330	\$489,241	-\$93,858
Oklahoma	10	\$129.18	\$453,894	2,242	\$563,258	-\$109,365
North Carolina	23	\$156.59	\$1,308,684	5,275	\$1,485,464	-\$176,779
Oregon	4	\$211.14	\$325,099	2,424	\$537,035	-\$211,936
Connecticut	14	\$216.69	\$1,126,712	2,512	\$1,435,667	-\$308,955
Nevada	2	\$175.81	\$138,135	1,237	\$473,511	-\$335,375
Kentucky	13	\$138.17	\$676,811	2,507	\$1,060,760	-\$383,948
Georgia	20	\$135.59	\$1,001,591	4,186	\$1,390,453	-\$388,862
Texas	45	\$122.35	\$1,989,202	11,085	\$2,493,100	-\$503,898
Washington	9	\$164.93	\$568,029	3,670	\$1,227,995	-\$659,966
Maryland	11	\$218.25	\$885,511	3,182	\$1,625,624	-\$740,112
Tennessee	18	\$147.38	\$977,652	3,616	\$1,747,861	-\$770,209
Arizona	7	\$167.09	\$417,485	3,776	\$1,211,345	-\$793,860
Virginia	18	\$150.23	\$959,693	4,214	\$1,801,770	-\$842,077
Indiana	21	\$151.15	\$1,142,505	3,871	\$2,082,195	-\$939,690
California	52	\$162.45	\$3,080,984	19,480	\$8,423,202	-\$5,342,218
Florida	40	\$192.49	\$2,807,944	15,155	\$8,472,024	-\$5,664,080
US	751		\$45,403,179	182,453	\$54,441,248	-\$9,038,069

SOURCE: 2009 data from Older Americans Act State Program Reports, LTCfocUS.org, Minimum Data Set, and the Medicare Enrollment Records

NOTES: We assumed that the average Title III-C2 spending on home-delivered meals per client reported in 2009 would be the same for the additional clients served by the program. We also assumed the Medicaid payment for each dually-eligible low-care resident would be the state average 2009 Medicaid payment rate.

APPENDIX EXHIBIT A7

Sensitivity Analysis Results: State-by-State Comparisons of Estimated Savings from Increasing the Number of Older Adults age 65+ Receiving Meals by 1%, 2005

	Number of Low Care Dually- Eligible Residents Not in Nursing Home in 2005 if		Amount Potentially Saved by Medicaid Per Year by Increasing the	New Clients Served with a 1%	Additional Title III-C2 Funding Required per Year for	
	Proportion of	Adjusted	Proportion of	Increase in	Increasing the	
	Older Adults 65+	Average	Older Adults 65+	Home-	Number of	
	Receiving Meals	Medicaid Per	Receiving Meals	Delivered	New Clients	Total Yearly
	Increases by 1%	Diem in 2009	by 1%	Meals	Served	Savings
New York	162	\$228.52	\$13,504,360	26,198	\$5,905,190	\$7,599,170
Pennsylvania	131	\$188.70	\$9,040,235	19,463	\$2,122,958	\$6,917,277
Ohio	115	\$167.25	\$7,020,076	16,053	\$4,017,827	\$3,002,249
Massachusetts	65	\$194.70	\$4,644,680	8,945	\$1,752,956	\$2,891,724
New Jersey	73	\$174.08	\$4,620,780	11,730	\$2,288,450	\$2,332,330
Illinois	119	\$117.44	\$5,083,359	15,945	\$3,004,487	\$2,078,872
Minnesota	41	\$162.62	\$2,414,819	6,711	\$967,373	\$1,447,446
Wisconsin	51	\$162.79	\$3,006,276	7,613	\$1,599,587	\$1,406,689
Louisiana	43	\$133.87	\$2,097,560	5,543	\$766,781	\$1,330,778
Missouri	48	\$126.12	\$2,227,378	8,224	\$1,073,377	\$1,154,001
Michigan	61	\$160.08	\$3,556,961	13,398	\$2,481,102	\$1,075,860
Mississippi	26	\$176.05	\$1,685,548	3,769	\$940,932	\$744,616
Arkansas	25	\$143.59	\$1,296,493	4,137	\$642,679	\$653,814
lowa	28	\$126.10	\$1,269,436	4,443	\$721,586	\$547,850
Kansas	21	\$135.21	\$1,037,765	3,675	\$516,153	\$521,612
New Hampshire	11	\$194.97	\$780,180	1,792	\$331,314	\$448,866
New Mexico	10	\$174.56	\$616,580	2,613	\$205,620	\$410,960
Alabama	36	\$166.42	\$2,204,396	6,510	\$1,878,605	\$325,792
Nebraska	14	\$120.46	\$615,882	2,406	\$335,213	\$280,668
Rhode Island	13	\$186.49	\$886,573	1,506	\$644,717	\$241,857
Connecticut	38	\$216.69	\$3,017,611	4,881	\$2,789,027	\$228,584
Montana	7	\$158.84	\$396,541	1,419	\$172,729	\$223,813

North Dakota	6	\$180.90	\$399,665	949	\$205,849	\$193,816
Delaware	5	\$210.65	\$382,781	1,267	\$301,990	\$80,791
Oklahoma	28	\$129.18	\$1,305,462	4,960	\$1,246,068	\$59,393
Utah	7	\$149.95	\$368,572	2,512	\$315,029	\$53,543
Wyoming	3	\$158.17	\$179,762	669	\$139,563	\$40,199
South Dakota	8	\$114.03	\$317,422	1,177	\$291,570	\$25,851
North Carolina	59	\$156.59	\$3,377,212	11,920	\$3,357,012	\$20,200
Colorado	23	\$174.61	\$1,439,813	5,336	\$1,420,686	\$19,127
Vermont	5	\$180.92	\$337,328	899	\$324,065	\$13,262
South Carolina	26	\$147.58	\$1,409,145	6,232	\$1,403,221	\$5,925
Idaho	6	\$171.29	\$403,454	1,874	\$400,798	\$2,655
West Virginia	16	\$172.00	\$1,029,396	2,876	\$1,057,469	-\$28,074
Maine	10	\$176.94	\$644,648	2,056	\$676,409	-\$31,760
Oregon	12	\$211.14	\$888,457	5,169	\$1,145,178	-\$256,721
Georgia	57	\$135.59	\$2,798,938	10,148	\$3,371,059	-\$572,121
Kentucky	35	\$138.17	\$1,755,208	5,703	\$2,412,796	-\$657,588
Texas	113	\$122.35	\$5,042,139	25,392	\$5,711,061	-\$668,922
Nevada	5	\$175.81	\$332,566	3,068	\$1,174,867	-\$842,300
Maryland	32	\$218.25	\$2,578,707	6,948	\$3,549,180	-\$970,473
Washington	27	\$164.93	\$1,610,864	8,062	\$2,697,846	-\$1,086,982
Indiana	56	\$151.15	\$3,079,442	8,286	\$4,456,440	-\$1,376,998
Tennessee	50	\$147.38	\$2,678,736	8,410	\$4,064,431	-\$1,385,696
Arizona	20	\$167.09	\$1,208,979	8,667	\$2,780,698	-\$1,571,719
Virginia	45	\$150.23	\$2,459,616	9,601	\$4,105,286	-\$1,645,670
California	156	\$162.45	\$9,236,936	41,481	\$17,935,899	-\$8,698,963
Florida	109	\$192.49	\$7,666,081	31,958	\$17,865,574	-\$10,199,493
US	2054		\$123,954,817	392,594	\$117,568,708	\$6,386,109

SOURCE: 2009 data from Older Americans Act State Program Reports, and the Medicare Enrollment Records and 2005 data from LTCfocUS.org, and the Minimum Data Set,

NOTES: We assumed that the average Title III-C2 spending on home-delivered meals per client reported in 2009 would be the same for the additional clients served by the program. We also assumed the Medicaid payment for each dually-eligible low-care resident would be the state average 2009 Medicaid payment rate.