Supplementary Appendix

Supplement to: "SNAP Food Purchase Restrictions and Retailer Availability: A Difference-in-Differences Analysis"

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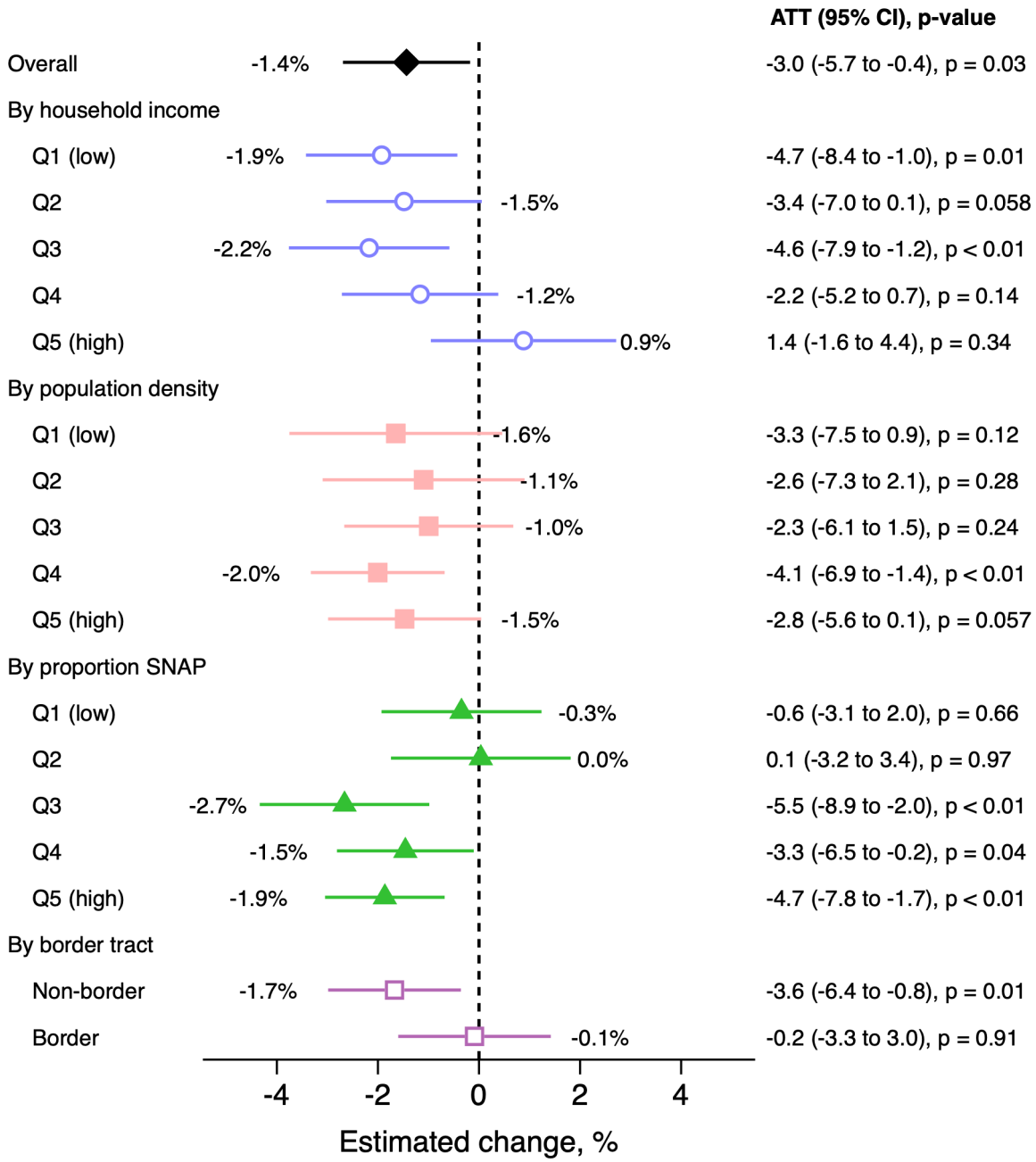
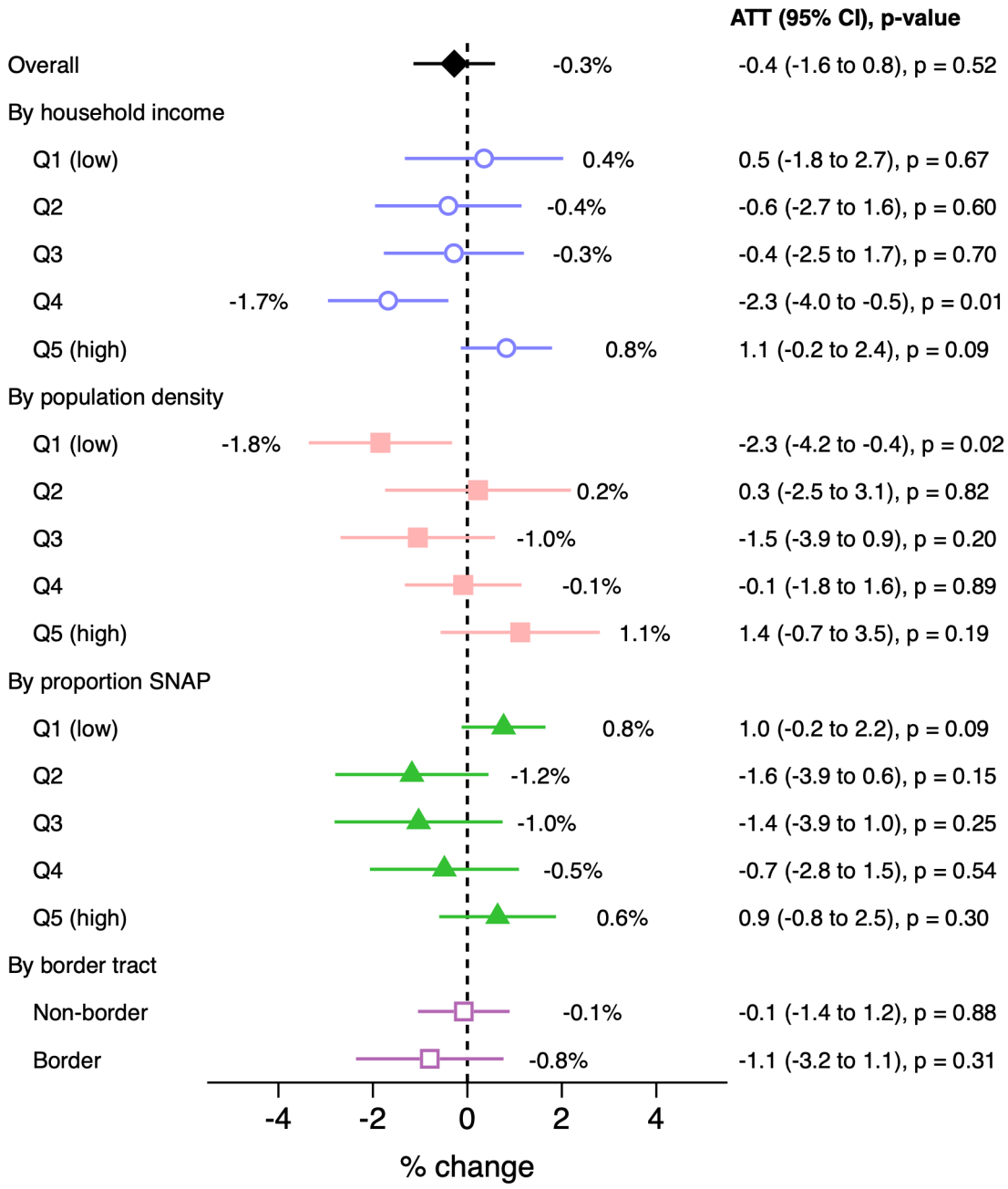
Appendix Figure A1. Estimated changes in convenience store availability after SNAP waiver implementation, overall and by tract subgroup



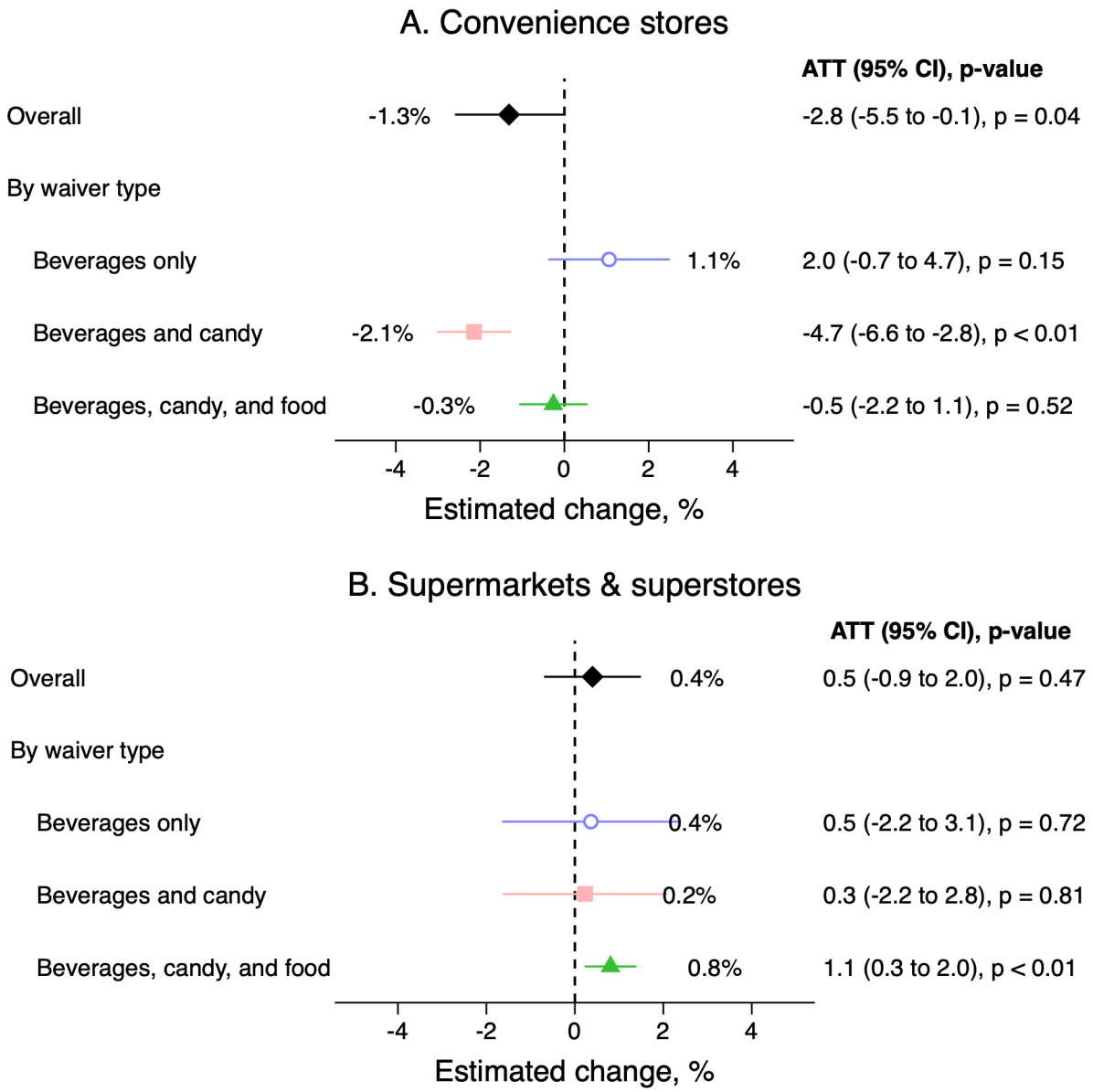
Note: Estimates are from adjusted two-way fixed-effects difference-in-differences models. Points indicate estimated average treatment effects on the treated (ATTs); horizontal lines indicate 95% CIs. The x-axis and labels adjacent to the points and whiskers express the ATT as a percentage change relative to the pre-implementation mean for the corresponding subgroup. Labels on the secondary y-axis express the ATT as the change in stores per 100 census tracts, with 95% CIs and p-values. Models are restricted to census tracts with at least one store of the relevant type in any biweekly period before the first waiver submission observed in the sample. The Border subgroup includes tracts within 10 miles of a state border but excludes border tracts adjacent to a state with an active waiver.

Appendix Figure A2. Estimated changes in supermarket and superstore availability after SNAP waiver implementation, overall and by tract subgroup



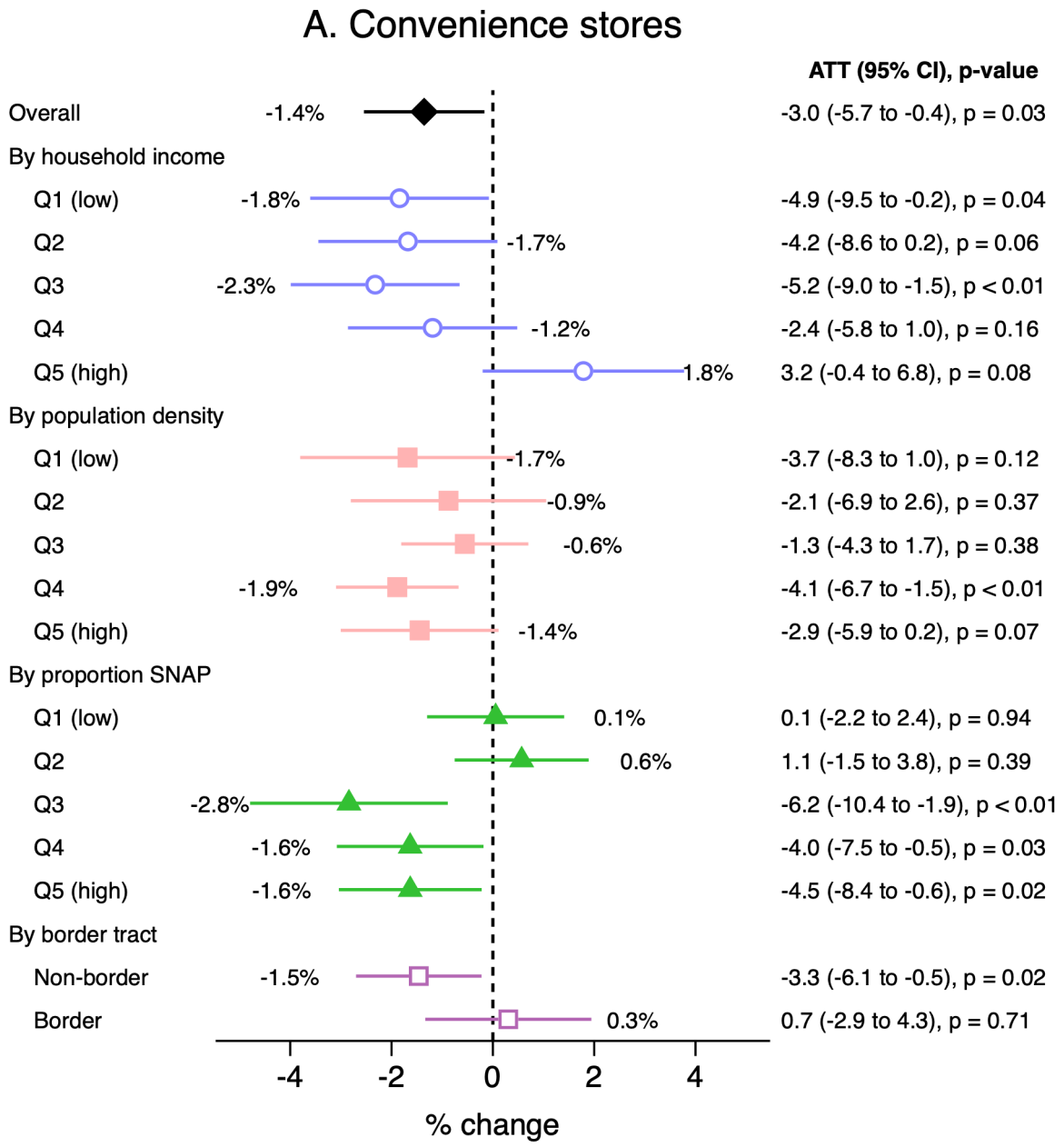
Note: Estimates are from adjusted two-way fixed-effects difference-in-differences models. Points indicate estimated average treatment effects on the treated (ATTs); horizontal lines indicate 95% CIs. The x-axis and labels adjacent to the points and whiskers express the ATT as a percentage change relative to the pre-implementation mean for the corresponding subgroup. Labels on the secondary y-axis express the ATT as the change in stores per 100 census tracts, with 95% CIs and p-values. Models are restricted to census tracts with at least one store of the relevant type in any biweekly period before the first waiver submission observed in the sample. The Border subgroup includes tracts within 10 miles of a state border but excludes border tracts adjacent to a state with an active waiver.

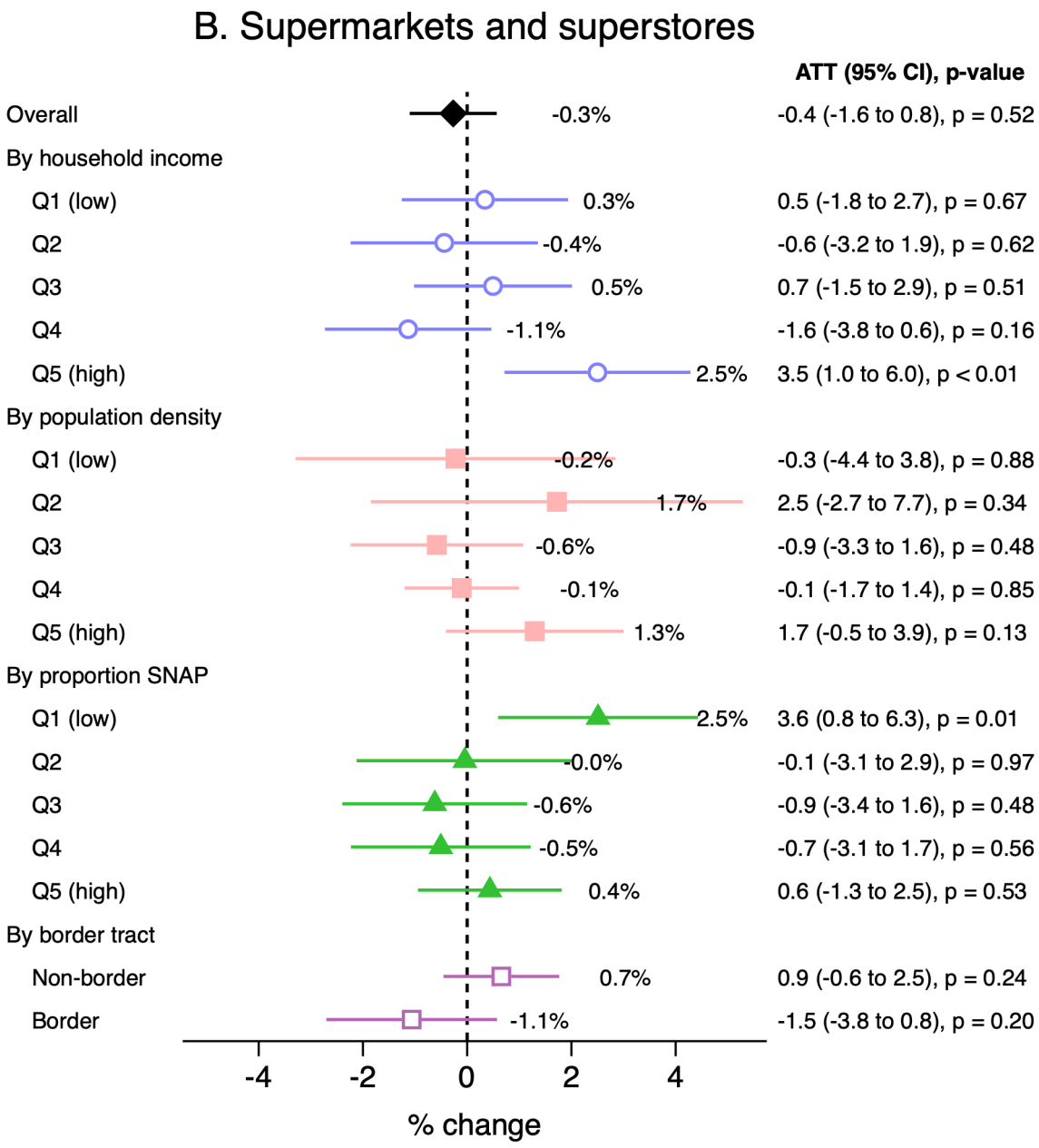
Appendix Figure A3. Estimated changes in food retail availability after SNAP waiver implementation, overall and by waiver type (population-weighted)



Note: Estimates are from population-weighted, adjusted two-way fixed-effects difference-in-differences models. Points indicate estimated average treatment effects on the treated (ATTs); horizontal lines indicate 95% CIs. The x-axis and labels adjacent to the points and whiskers express the ATT as a percentage change relative to the pre-implementation mean for the corresponding waiver type. Labels on the secondary y-axis express the ATT as the change in stores per 100 census tracts, with 95% CIs and P values. Waiver types are categorized according to whether the implemented restrictions applied to sugar-sweetened beverages only; sugar-sweetened beverages and candy; or sugar-sweetened beverages, candy, and additional foods. Models are restricted to census tracts with at least one store of the relevant type in any biweekly period before the first waiver submission observed in the sample. Panel A shows convenience stores; Panel B shows supermarkets and superstores.

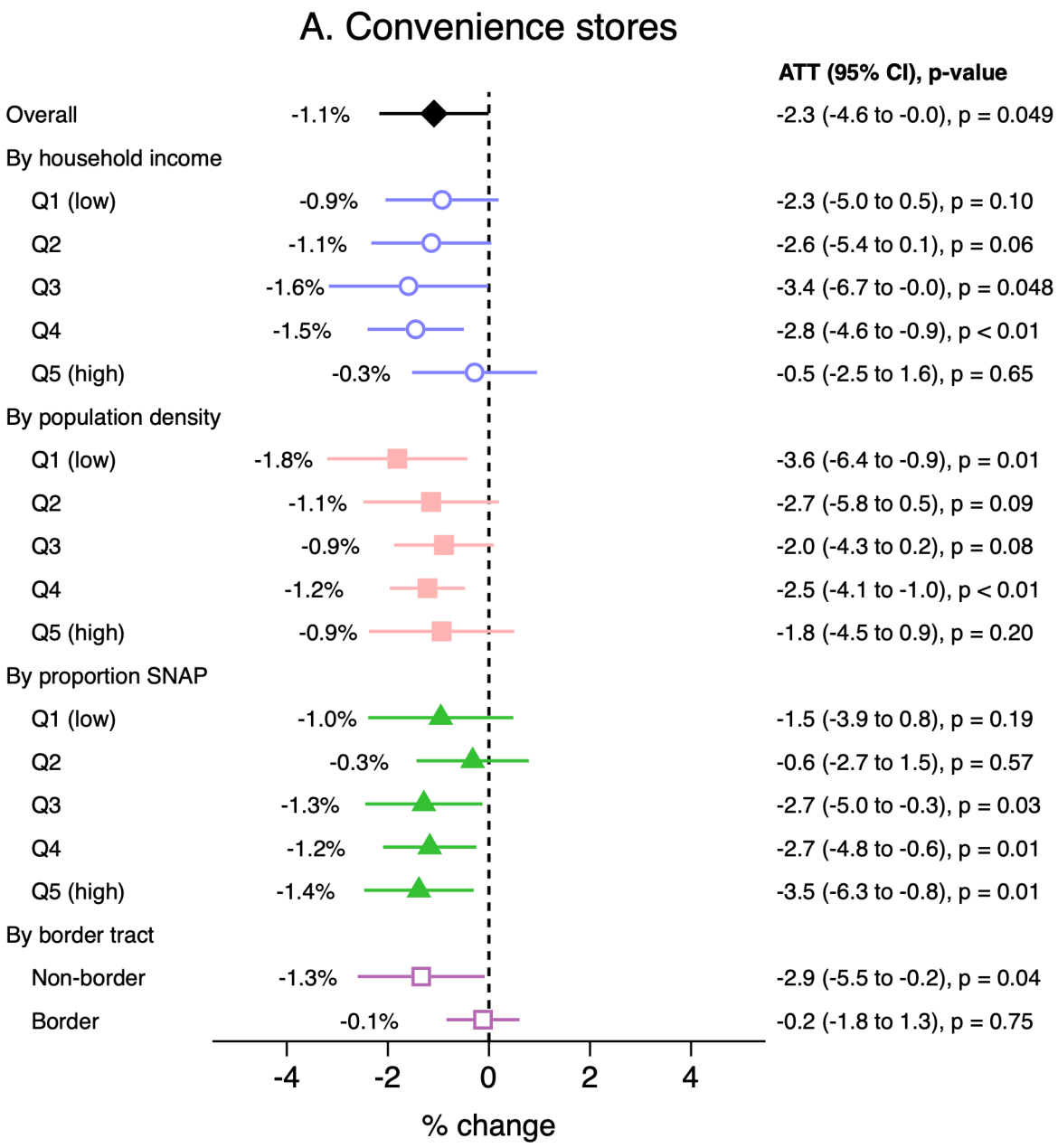
Appendix Figure A4. Estimated changes in food retail availability after SNAP waiver implementation, overall and by tract subgroup (population-weighted)

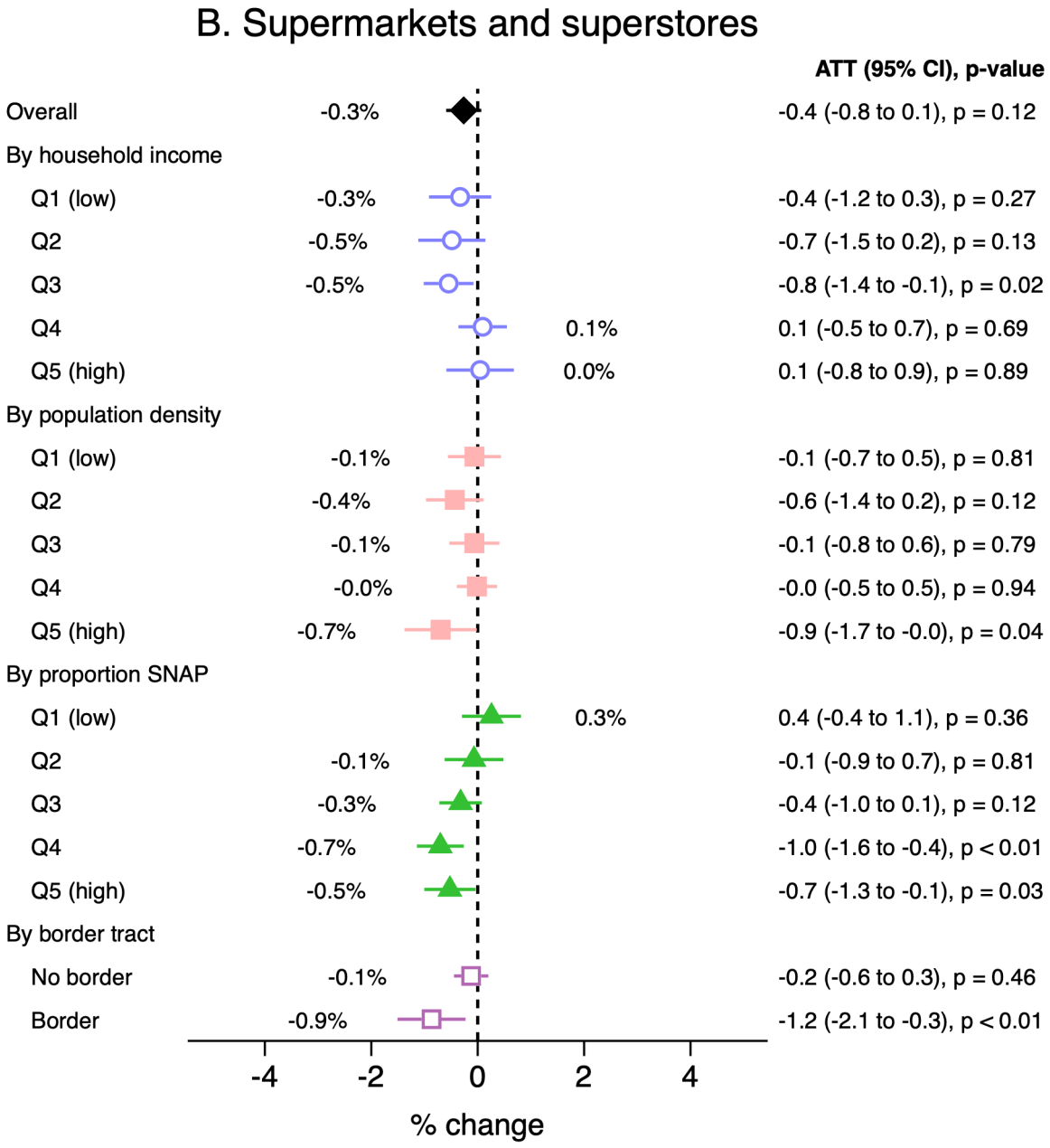




Note: Estimates are from population-weighted adjusted two-way fixed-effects difference-in-differences models. Points indicate estimated average treatment effects on the treated (ATTs); horizontal lines indicate 95% CIs. The x-axis and labels adjacent to the points and whiskers express the ATT as a percentage change relative to the pre-implementation mean for the corresponding subgroup. Labels on the secondary y-axis express the ATT as the change in stores per 100 census tracts, with 95% CIs and p-values. Models are restricted to census tracts with at least one store of the relevant type in any biweekly period before the first waiver submission observed in the sample. The Border subgroup includes tracts within 10 miles of a state border but excludes border tracts adjacent to a state with an active waiver. Panel A shows convenience stores; Panel B shows supermarkets and superstores.

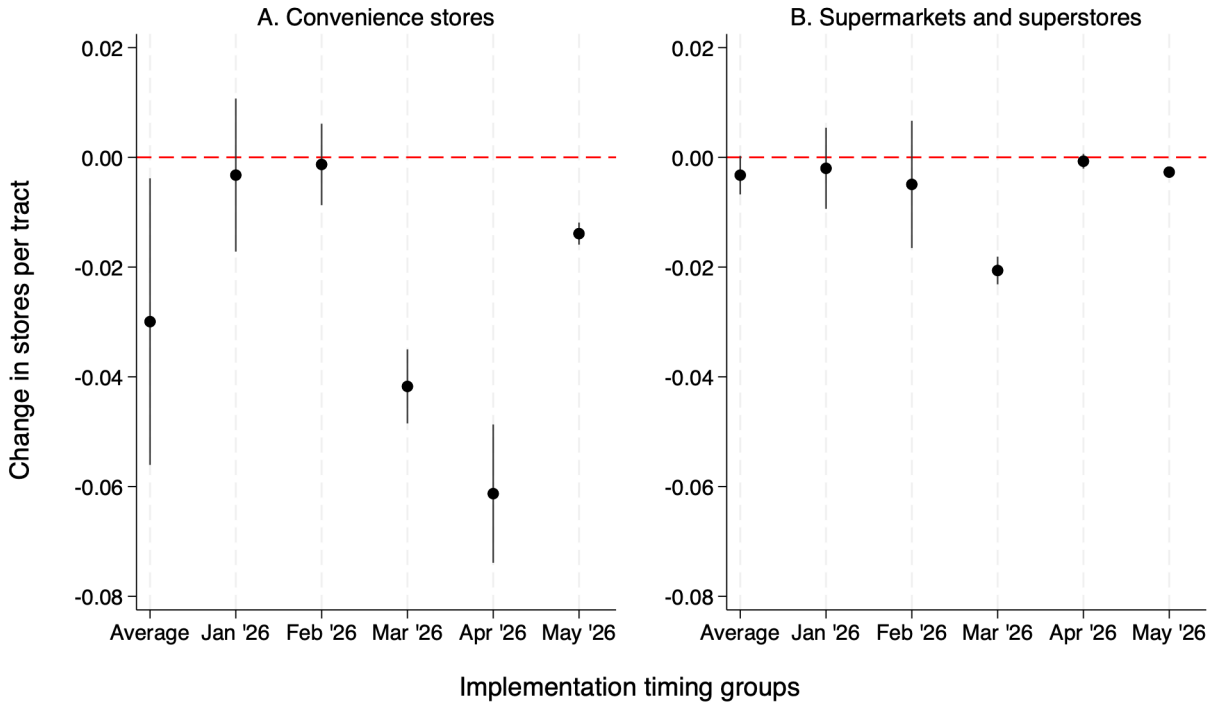
Appendix Figure A5. Callaway-Sant'Anna difference-in-differences estimates of the changes in food retail availability after SNAP waiver implementation, overall and by tract subgroup





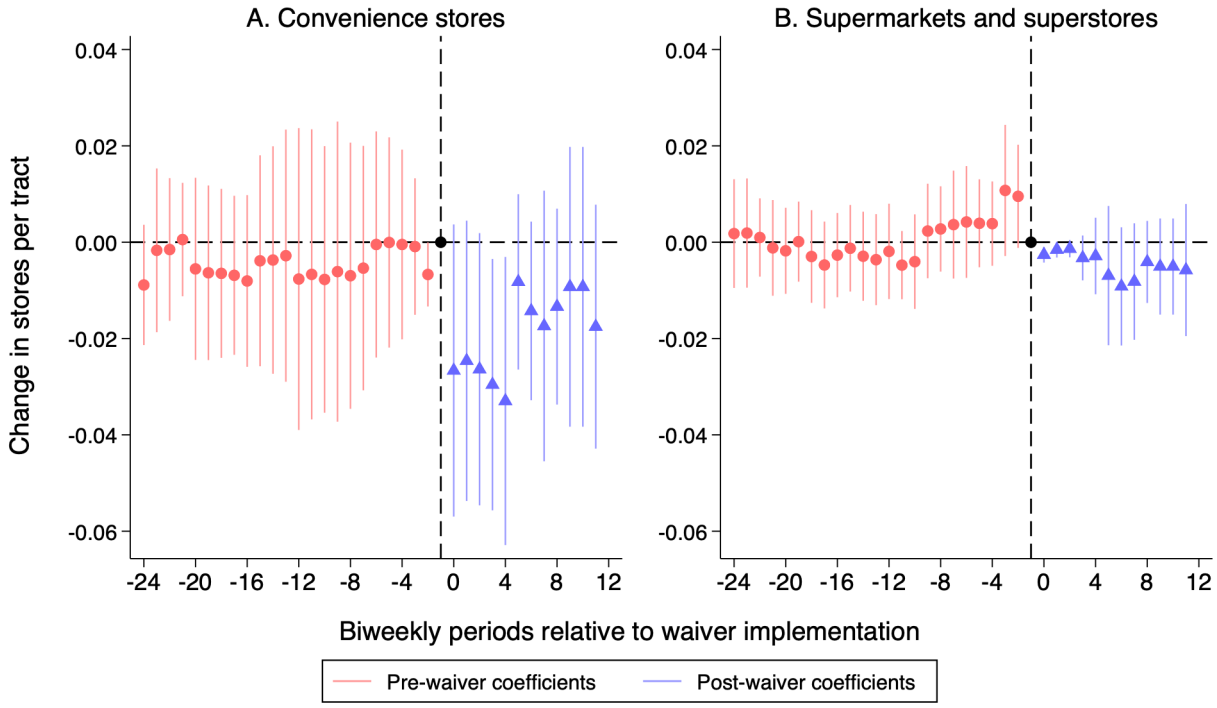
Note: Estimates are from Callaway and Sant'Anna difference-in-differences models for staggered policy implementation. Points indicate estimated average treatment effects on the treated (ATTs); horizontal lines indicate 95% CIs. The x-axis and labels adjacent to the points and whiskers express the ATT as a percentage change relative to the pre-implementation mean for the corresponding subgroup. Labels on the secondary y-axis express the ATT as the change in stores per 100 census tracts, with 95% CIs and p-values. Models are restricted to census tracts with at least one store of the relevant type in any biweekly period before the first waiver submission observed in the sample. The Border subgroup includes tracts within 10 miles of a state border but excludes border tracts adjacent to a state with an active waiver. Panel A shows convenience stores; Panel B shows supermarkets and superstores.

Appendix Figure A6. Callaway-Sant'Anna difference-in-differences estimates of the changes in food retail availability after SNAP waiver implementation, by implementation timing group



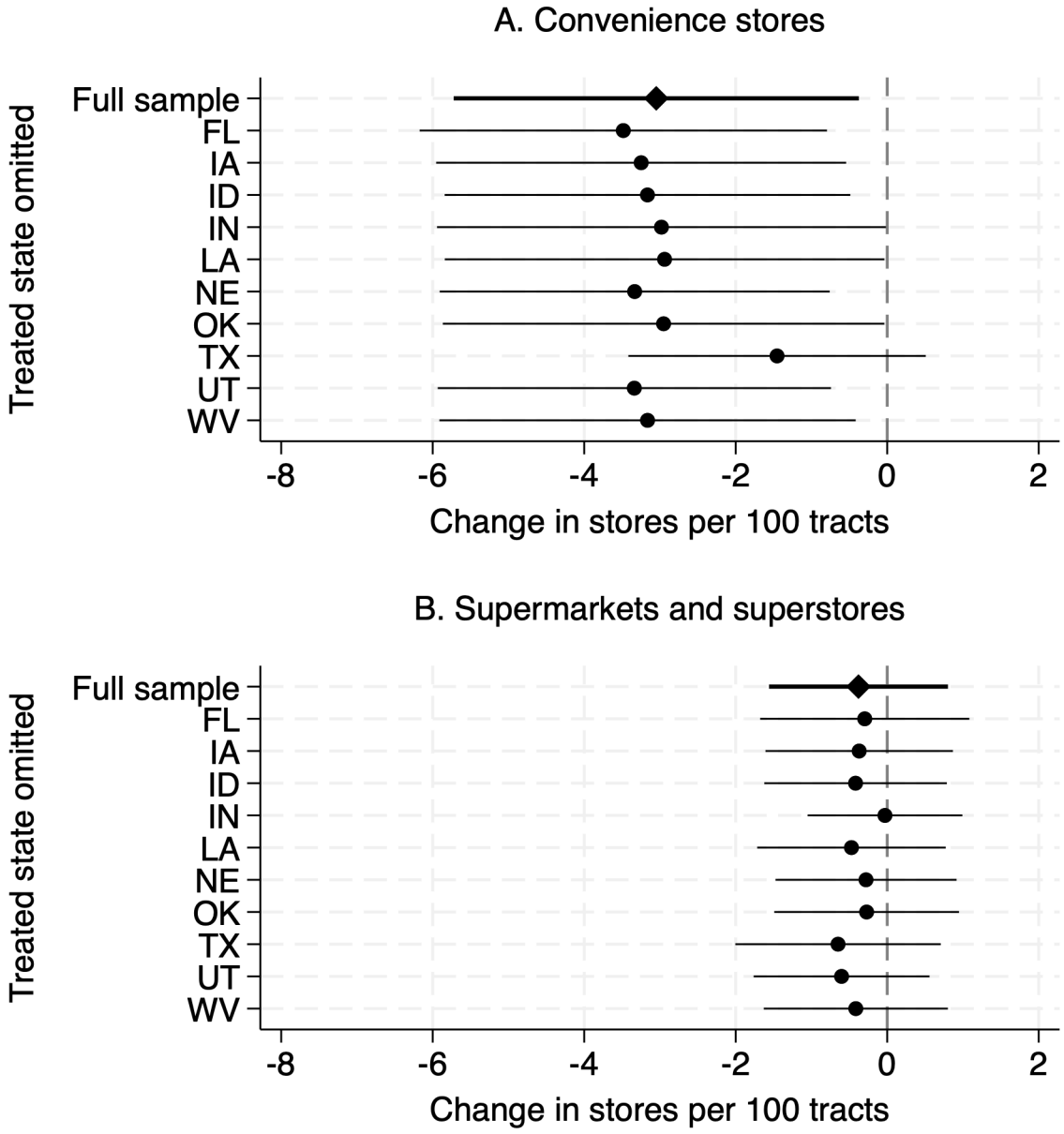
Note: Estimates are from Callaway and Sant'Anna difference-in-differences models for staggered policy implementation. Points indicate estimated average treatment effects on the treated (ATTs); horizontal lines indicate 95% CIs. The y-axis expresses the ATT as the change in stores per census tract. Implementation timing groups are defined according to the first biweekly period in which the SNAP waiver was implemented; the "Average" estimate represents the overall ATT aggregated across implementation timing groups. Models are restricted to census tracts with at least one store of the relevant type in any biweekly period before the first waiver submission observed in the sample. Panel A shows convenience stores; Panel B shows supermarkets and superstores.

Appendix Figure A7. Callaway-Sant'Anna difference-in-differences event study estimates of changes in food retail availability after SNAP waiver implementation



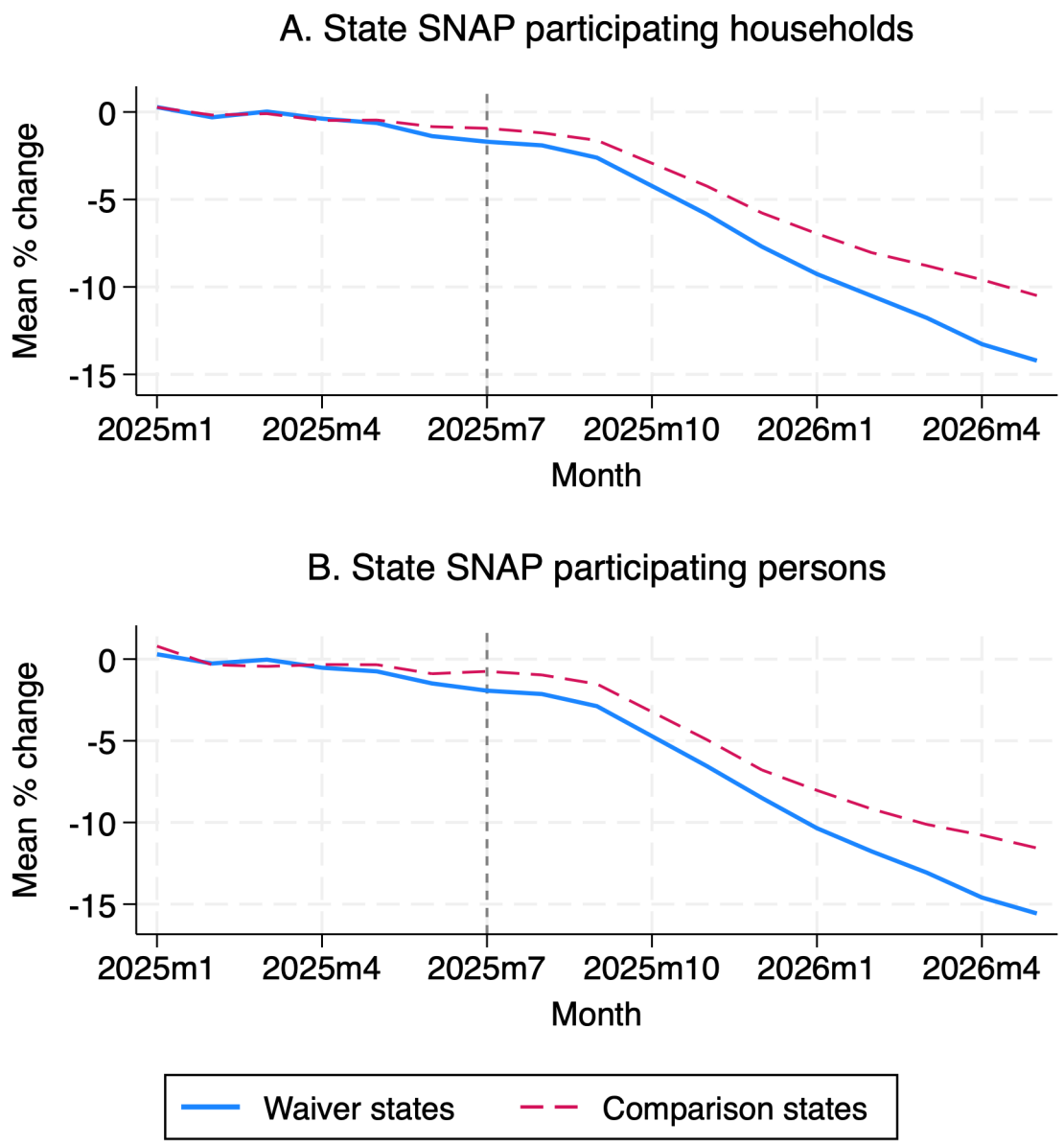
Note: Estimates are from Callaway and Sant'Anna difference-in-differences models for staggered policy implementation. Points indicate event-time coefficients; vertical lines indicate 95% CIs. Coefficients are expressed as changes in stores per census tract relative to the reference period, defined as the biweekly period immediately before waiver implementation. Red circles indicate pre-implementation coefficients, blue triangles indicate postimplementation coefficients, and the black point denotes the omitted reference period. Models are restricted to census tracts with at least one store of the relevant type in any biweekly period before the first waiver submission observed in the sample. Panel A shows convenience stores; Panel B shows supermarkets and superstores.

Appendix Figure A8. Leave-one-treated-state-out estimates of changes in SNAP-authorized retailer availability after waiver implementation



Note: Estimates are from the primary adjusted two-way fixed-effects difference-in-differences model, sequentially omitting each waiver-implementing state. Points indicate estimated changes in SNAP-authorized stores per 100 Census tracts; horizontal lines indicate 95% confidence intervals with standard errors clustered by state. The diamond shows the full-sample estimate.

Appendix Figure A9. Trends in SNAP participation in waiver and comparison states



Note: Panel A shows SNAP-participating households and Panel B shows SNAP-participating persons. For each state, monthly participation is expressed as the percentage change from its January-March 2025 mean; plotted values are unweighted means across states. The vertical line denotes enactment of H.R.1 in July 2025.

Appendix Table A1. State Quintile Boundaries for Population Density (Persons per Square Mile; Min, Max)

State	Q1	Q2	Q3	Q4	Q5
AK	0, 1.01	1.02, 55.96	65.64, 719.06	721.97, 3078.76	3461.39, 11415.94
AL	0, 56.04	56.4, 195.47	195.5, 677.09	684.13, 1863.57	1864.99, 13355.78
AR	0, 24.54	24.55, 111.36	112.07, 456.82	458.48, 1675.1	1708.94, 11863.29
AZ	0, 465.95	472.64, 2237.83	2241.73, 4155.51	4160.63, 5993.05	5993.65, 34337.01
CA	0, 1848.64	1848.92, 4974.6	4974.89, 7888.97	7889.32, 12416.62	12428.26, 190925.84
CO	0, 194.38	197.9, 2013.65	2015.45, 4035.61	4042.76, 6158.49	6169.23, 35102.36
CT	0, 550.56	555.41, 1307.27	1309.63, 2793.18	2804.5, 6255.39	6310.91, 35862.05
DC	6.76, 8691.53	8738.45, 13191.57	13299.9, 20800.83	20999.28, 28328.17	28603.77, 85747.81
DE	0, 359.81	380.78, 1012.08	1032.8, 2078.84	2102.9, 4368.04	4369.53, 35282.54
FL	0, 879.51	879.76, 2242.52	2242.96, 3727.82	3729.65, 6143.4	6155.48, 177199.45
GA	0, 131.53	131.74, 719.16	719.9, 1841.73	1841.85, 3035.4	3037.54, 45600.25
IA	0, 19.83	19.86, 141.11	148.02, 959.12	964.13, 3108.19	3111.32, 34645.6
ID	0.33, 29.91	31.59, 332.47	335.08, 2086.91	2132.21, 3980.48	4003.76, 23032.53
IL	0, 469.82	473.61, 2139.04	2140.68, 4574.31	4577.63, 10350.21	10377.49, 238333.24
IN	0, 94.52	94.55, 722.32	725.54, 1934.78	1939.27, 3395.87	3397.24, 26698.62
KS	0, 22.99	23.27, 362.09	366.6, 2129.86	2140.69, 3508.61	3514.68, 15547.16
KY	0, 46.62	46.76, 115.33	115.66, 818.57	820.48, 3158.52	3186.92, 13349.69
LA	0, 73.27	73.84, 509.56	509.77, 1787.69	1798.1, 4059.25	4064.27, 22828.01
MA	0, 720.06	720.15, 2004.28	2005.29, 5151.07	5187.57, 13987.16	13987.65, 88458.68
MD	0, 613.24	614.16, 2496.84	2501.2, 4505.25	4506.56, 7873.38	7902.89, 56280.63
ME	0.47, 46.21	46.74, 106.5	106.63, 231.54	235.59, 846.87	857.02, 35931.85
MI	0, 122.36	124.46, 964.77	965.98, 2560.07	2560.55, 4512.71	4513.28, 52377.1
MN	0, 45.23	45.32, 680.13	686.23, 2370.5	2375.36, 4415.82	4423.27, 43837.73
MO	0, 52.9	53.28, 533.76	533.92, 1851.96	1867.99, 3571.01	3571.72, 19922.87
MS	0, 31.09	31.13, 89.22	90.05, 523.37	529.52, 1351.22	1352.28, 7636.77
MT	0, 3.08	3.16, 25.5	27.56, 375.2	385.88, 2525.41	2568.31, 8327.25
NC	0, 123.52	123.86, 412.65	413.2, 1191.75	1192.72, 2513.7	2515.5, 27967.74
ND	0.63, 3.18	3.22, 12.86	13.11, 648.44	784.9, 3294.6	3357.02, 12096.22
NE	0.29, 13.47	13.86, 400.02	400.79, 2604.86	2622.22, 4287.79	4310.27, 14999.01
NH	0, 95.06	95.64, 250.05	254.52, 651.41	654.75, 2170.29	2226.95, 22379.56
NJ	0, 1352.64	1370.11, 3019.21	3022.36, 5585.41	5599.97, 13703.78	13756.71, 122049.49
NM	0, 22.07	22.45, 365.49	367.96, 1884.13	1893.24, 3891.85	3905.24, 15187.62
NV	0, 1368.55	1379.05, 4140.3	4141.49, 6523	6609.74, 8957.77	8981.44, 22474.8
NY	0, 626.25	630.05, 3939.04	3948.88, 14689.56	14707.15, 46329.35	46414.62, 292555.85
OH	0, 228.29	228.54, 1231.68	1231.9, 2586.8	2593.77, 4571.35	4574.64, 30776.1
OK	0, 41.85	42.02, 319.16	326.65, 1668.93	1695.6, 3515.45	3539.13, 11646.94
OR	0, 101.35	102.22, 1464.88	1480.78, 3787.82	3788.33, 6007.72	6008.42, 43660.29
PA	0, 209.94	210.44, 1207.91	1215.4, 3190.69	3192.6, 7195.8	7197.61, 81476.68
RI	0, 925.63	959.96, 2558.36	2629.68, 4901.16	4904.41, 10170.42	10348.91, 24641.02
SC	0, 83.87	83.92, 343.88	345.48, 1008.83	1010.27, 1964.31	2000.55, 14350.85
SD	0.43, 4.68	4.68, 24.52	26.47, 313.91	317.01, 2310.18	2314.36, 7902.38
TN	0, 81.08	81.47, 345.68	347.2, 1213.95	1218.71, 2606.44	2606.79, 41873.68
TX	0, 331.48	333.64, 1895.24	1895.32, 3660.49	3660.62, 5671.63	5671.87, 67990.66
UT	0, 388.01	426.14, 2455.12	2474.11, 4318.9	4328.37, 6009.73	6018.21, 35867.58
VA	0, 122.93	123.85, 1254.08	1261.25, 3036.86	3040.15, 5314.28	5319.05, 102342.62
VT	0, 33.22	33.87, 68.16	68.71, 128.46	128.7, 747.79	752.04, 18626.25
WA	0, 322.81	323.09, 1894.85	1900.44, 3788.63	3810.66, 6035.36	6035.53, 121466.7
WI	0, 58.79	59.36, 530.02	531.2, 2091.77	2096.95, 4833.08	4849.04, 70276.51
WV	6.25, 35.74	36.79, 100.91	100.99, 358.03	360.77, 1585.57	1621.28, 15849.83
WY	0, 2.55	2.56, 80.41	81.14, 568.75	572.31, 2086.5	2091.83, 6987.93

Appendix Table A2. State Quintile Boundaries for Median Household Income (Min, Max)

State	Q1	Q2	Q3	Q4	Q5
AK	26691, 65625	66117, 83724	83750, 93602	94135, 110357	111613, 239125
AL	14962, 41152	41237, 53247	53460, 65313	65315, 82448	82500, 240625
AR	8833, 43036	43125, 51870	51890, 62077	62083, 76203	76279, 195880
AZ	18409, 52618	52639, 67321	67344, 85280	85335, 110707	110714, 250001
CA	5213, 66008	66016, 86250	86250, 107460	107500, 141023	141111, 250001
CO	23590, 65492	65568, 83273	83317, 103050	103140, 132227	132538, 250001
CT	15351, 62146	62279, 87857	88015, 109197	109211, 141250	141689, 250001
DC	12117, 67611	68816, 101778	102585, 132768	132809, 167528	167632, 250001
DE	26611, 61851	62864, 77031	77036, 89286	89720, 113672	113949, 203107
FL	7969, 52303	52321, 66202	66204, 80000	80036, 101853	101866, 250001
GA	8354, 50882	50897, 65694	65697, 82167	82172, 107096	107105, 250001
IA	18520, 58869	58971, 68125	68155, 77963	78000, 91974	92083, 198056
ID	22048, 60781	60977, 73290	73571, 83333	83401, 98642	98864, 200652
IL	2499, 55070	55104, 71434	71474, 87470	87485, 114875	114891, 250001
IN	8606, 49709	49709, 63021	63029, 76250	76292, 90816	90882, 250001
KS	13625, 53071	53081, 62535	62639, 75964	76181, 97188	97963, 250001
KY	9038, 42286	42292, 54167	54167, 64632	64693, 82351	82396, 248571
LA	11473, 37063	37148, 51000	51023, 65240	65313, 84855	84898, 222917
MA	16276, 69675	69803, 94692	94736, 117629	117688, 147596	147745, 250001
MD	2499, 68110	68333, 89815	89821, 115037	115040, 147105	147210, 250001
ME	24353, 56076	56089, 66733	66890, 78198	78229, 94853	95066, 195781
MI	11090, 46759	46764, 62731	62752, 76538	76563, 98224	98361, 250001
MN	16678, 65000	65043, 78958	78973, 93529	93611, 116705	116824, 250001
MO	13849, 48798	48804, 60506	60507, 73378	73438, 91563	91711, 250001
MS	15605, 37422	37446, 48182	48203, 58958	59000, 73061	73479, 168750
MT	26339, 54609	54653, 64521	64688, 73915	74058, 86111	86123, 160984
NC	14821, 49873	49896, 61530	61533, 74665	74688, 95750	95767, 250001
ND	23636, 59688	59784, 70927	70980, 80208	80298, 95083	95758, 162000
NE	24565, 57545	57702, 68487	68603, 79412	79453, 100083	100132, 243857
NH	29625, 73365	73625, 89154	89238, 105699	106000, 123304	123581, 207183
NJ	15943, 68889	68929, 91077	91111, 113611	113921, 149864	149895, 250001
NM	15951, 41545	41726, 52549	52554, 66136	66683, 85944	86750, 250001
NV	18480, 54022	54372, 70049	70313, 85352	85540, 105017	105104, 217182
NY	2499, 55404	55441, 74292	74297, 94000	94000, 124966	125000, 250001
OH	7139, 47384	47438, 61357	61362, 75813	75844, 94928	94934, 250001
OK	11406, 46154	46193, 56592	56599, 66567	66588, 85550	85550, 250001
OR	15653, 60893	60921, 74837	74845, 89343	89375, 109674	109848, 250001
PA	8889, 54024	54045, 67417	67456, 82135	82188, 106250	106250, 250001
RI	16543, 64063	64177, 81461	82550, 97969	98361, 115731	116688, 250001
SC	11833, 45833	45878, 58075	58077, 70986	71000, 87750	87877, 250001
SD	23659, 57546	57645, 70000	70191, 80000	80174, 88007	88656, 152958
TN	2499, 47634	47650, 58988	59009, 71290	71294, 90921	91005, 250001
TX	2499, 49659	49674, 64556	64583, 81122	81125, 108092	108097, 250001
UT	27446, 69214	69375, 86250	86250, 105154	105221, 128013	128065, 234808
VA	11953, 57031	57044, 75402	75521, 100859	100912, 140842	141121, 250001
VT	32212, 66250	66273, 76587	76597, 85179	85368, 97966	98365, 164294
WA	17500, 68790	68828, 87925	87964, 106187	106310, 132625	132692, 250001
WI	10114, 57969	58005, 69565	69644, 81920	81927, 97581	97625, 224750
WV	14943, 43609	43732, 52159	52237, 61970	62000, 73240	73689, 135729
WY	15417, 61346	61609, 67823	67917, 77213	77763, 98782	98837, 146829

Appendix Table A3. State Quintile Boundaries for Percent of Households Receiving SNAP (Min, Max)

State	Q1	Q2	Q3	Q4	Q5
AK	0, 0.03	0.03, 0.07	0.07, 0.1	0.1, 0.17	0.17, 0.6
AL	0, 0.05	0.05, 0.1	0.1, 0.16	0.16, 0.24	0.24, 0.9
AR	0, 0.04	0.04, 0.07	0.07, 0.11	0.11, 0.17	0.17, 0.64
AZ	0, 0.02	0.02, 0.06	0.06, 0.11	0.11, 0.19	0.19, 0.71
CA	0, 0.04	0.04, 0.08	0.08, 0.13	0.13, 0.21	0.21, 1
CO	0, 0.02	0.02, 0.05	0.05, 0.09	0.09, 0.14	0.14, 0.54
CT	0, 0.02	0.02, 0.05	0.05, 0.1	0.1, 0.22	0.22, 1
DC	0, 0.02	0.02, 0.05	0.05, 0.12	0.12, 0.29	0.3, 0.69
DE	0, 0.03	0.03, 0.07	0.08, 0.11	0.11, 0.18	0.18, 0.52
FL	0, 0.03	0.03, 0.07	0.07, 0.13	0.13, 0.22	0.22, 0.93
GA	0, 0.03	0.03, 0.08	0.08, 0.13	0.13, 0.22	0.22, 1
IA	0, 0.04	0.04, 0.06	0.06, 0.09	0.09, 0.14	0.14, 0.45
ID	0, 0.02	0.02, 0.05	0.05, 0.08	0.08, 0.11	0.11, 0.62
IL	0, 0.05	0.05, 0.09	0.09, 0.15	0.15, 0.25	0.25, 0.8
IN	0, 0.03	0.03, 0.05	0.05, 0.09	0.09, 0.17	0.17, 0.73
KS	0, 0.02	0.02, 0.04	0.04, 0.07	0.07, 0.12	0.12, 1
KY	0, 0.05	0.05, 0.1	0.1, 0.15	0.15, 0.22	0.22, 0.63
LA	0, 0.08	0.08, 0.13	0.13, 0.2	0.2, 0.28	0.28, 0.87
MA	0, 0.04	0.04, 0.08	0.08, 0.13	0.13, 0.24	0.24, 1
MD	0, 0.03	0.03, 0.07	0.07, 0.11	0.11, 0.18	0.18, 0.62
ME	0, 0.05	0.05, 0.08	0.08, 0.13	0.13, 0.19	0.19, 0.65
MI	0, 0.04	0.04, 0.08	0.08, 0.13	0.13, 0.24	0.24, 0.82
MN	0, 0.02	0.02, 0.05	0.05, 0.07	0.07, 0.12	0.12, 0.67
MO	0, 0.03	0.03, 0.06	0.06, 0.1	0.1, 0.17	0.17, 0.68
MS	0, 0.05	0.05, 0.1	0.1, 0.15	0.15, 0.24	0.24, 0.6
MT	0, 0.03	0.03, 0.05	0.05, 0.08	0.08, 0.13	0.13, 0.46
NC	0, 0.04	0.04, 0.09	0.09, 0.14	0.14, 0.21	0.21, 0.84
ND	0, 0.02	0.02, 0.04	0.04, 0.06	0.06, 0.1	0.1, 0.39
NE	0, 0.03	0.03, 0.05	0.05, 0.08	0.08, 0.13	0.13, 0.46
NH	0, 0.01	0.01, 0.03	0.03, 0.06	0.06, 0.1	0.1, 0.4
NJ	0, 0.01	0.01, 0.04	0.04, 0.08	0.08, 0.16	0.16, 1
NM	0, 0.08	0.09, 0.15	0.15, 0.22	0.22, 0.32	0.32, 0.91
NV	0, 0.04	0.04, 0.08	0.08, 0.13	0.13, 0.21	0.21, 0.55
NY	0, 0.04	0.04, 0.08	0.08, 0.15	0.15, 0.26	0.26, 0.87
OH	0, 0.04	0.04, 0.08	0.08, 0.13	0.13, 0.23	0.23, 1
OK	0, 0.06	0.06, 0.1	0.1, 0.15	0.15, 0.22	0.22, 1
OR	0, 0.08	0.08, 0.12	0.12, 0.17	0.17, 0.24	0.24, 0.56
PA	0, 0.04	0.04, 0.09	0.09, 0.14	0.14, 0.24	0.24, 1
RI	0, 0.04	0.04, 0.07	0.07, 0.12	0.12, 0.24	0.26, 0.62
SC	0, 0.03	0.03, 0.08	0.08, 0.12	0.12, 0.2	0.2, 0.73
SD	0, 0.02	0.02, 0.05	0.05, 0.08	0.08, 0.13	0.13, 0.67
TN	0, 0.03	0.03, 0.07	0.07, 0.12	0.12, 0.19	0.19, 0.97
TX	0, 0.03	0.03, 0.07	0.07, 0.12	0.12, 0.21	0.21, 0.71
UT	0, 0.01	0.01, 0.03	0.03, 0.05	0.05, 0.08	0.08, 0.32
VA	0, 0.02	0.02, 0.05	0.05, 0.09	0.09, 0.16	0.16, 0.76
VT	0.01, 0.06	0.06, 0.08	0.08, 0.11	0.11, 0.15	0.15, 0.3
WA	0, 0.04	0.04, 0.07	0.07, 0.12	0.12, 0.19	0.19, 0.56
WI	0, 0.04	0.04, 0.07	0.07, 0.11	0.11, 0.18	0.18, 0.78
WV	0.01, 0.1	0.1, 0.14	0.14, 0.19	0.19, 0.27	0.27, 0.57
WY	0, 0.01	0.01, 0.04	0.04, 0.05	0.05, 0.09	0.09, 0.21

Appendix Table A4. Waiver characteristics and analytic sample by state

State	Waiver type	Submitted	Implemented	Treated tracts	Convenience tracts, No. (%)	Supermarket/ superstore tracts, No. (%)
IA	Beverages + candy + foods	Apr 1, 2025	Jan 1, 2026	893	715 (80.1)	316 (35.4)
IN	Beverages and candy	Apr 15, 2025	Jan 1, 2026	1,684	1,245 (73.9)	489 (29.0)
NE	Beverages only	Apr 14, 2025	Jan 1, 2026	551	331 (60.1)	175 (31.8)
UT	Beverages only	May 16, 2025	Jan 1, 2026	710	411 (57.9)	242 (34.1)
WV	Beverages only	Jun 10, 2025	Jan 1, 2026	545	453 (83.1)	176 (32.3)
ID	Beverages and candy	May 16, 2025	Feb 15, 2026	456	298 (65.4)	146 (32.0)
OK	Beverages + candy	Jun 10, 2025	Feb 15, 2026	1,195	881 (73.7)	349 (29.2)
LA	Beverages + candy	Jun 27, 2025	Feb 18, 2026	1,365	899 (65.9)	433 (31.7)
TX	Beverages + candy	Jun 26, 2025	Apr 1, 2026	6,831	5,077 (74.3)	2,173 (31.8)
FL	Beverages + candy + foods	May 29, 2025	Apr 20, 2026	5,074	3,226 (63.6)	1,991 (39.2)
Total				19,304	13,536 (70.1)	6,490 (33.6)

Note: Analytic sample columns report the number of census tracts in treated states with at least one store of the relevant type in any biweekly period before the first waiver submission observed in the sample. Waiver types describe the categories of products covered by the implemented SNAP waiver restrictions.

Appendix Table A5. SNAP caseload trends and sensitivity of retailer estimates to contemporaneous SNAP participation

Panel A. Differential changes in state SNAP caseloads after H.R.1

Caseload measure	Differential change in waiver states, %	95% CI	P- value	State-month observations
SNAP households	−2.06	−4.83 to 0.80	0.152	800
SNAP persons	−2.08	−4.99 to 0.91	0.166	800

Panel B. SNAP-authorized convenience stores

Model	Estimated change, %	Change in stores per 100 tracts (95% CI)	P-value	Tract-period observations
Primary model, full study period	−1.43	−3.05 (−5.72 to −0.37)	0.026	1,849,914
Primary model, months with caseload data	−1.21	−2.58 (−5.26 to 0.11)	0.060	1,737,798
+ contemporaneous SNAP households	−1.22	−2.60 (−5.35 to 0.16)	0.064	1,737,798
+ contemporaneous SNAP persons	−1.18	−2.52 (−5.30 to 0.26)	0.075	1,737,798

Panel C. SNAP-authorized supermarkets and superstores

Model	Estimated change, %	Change in stores per 100 tracts (95% CI)	P-value	Tract-period observations
Primary model, full study period	−0.28	−0.38 (−1.56 to 0.80)	0.522	913,110
Primary model, months with caseload data	−0.28	−0.38 (−1.65 to 0.88)	0.545	857,770
+ contemporaneous SNAP households	−0.40	−0.54 (−1.78 to 0.70)	0.388	857,770
+ contemporaneous SNAP persons	−0.37	−0.50 (−1.75 to 0.75)	0.423	857,770

Note: Panel A reports the waiver-state × post-H.R.1 coefficient from state-month regressions of log SNAP caseloads with state and month fixed effects and standard errors clustered by state. Coefficients and confidence intervals are transformed to percentage changes as 100 × [exp(coefficient) − 1]. H.R.1 was enacted in July 2025. Panels B and C report the coefficient on waiver implementation from the adjusted two-way fixed-effects difference-in-differences models. The full-study-period model uses all available retailer observations through June 23, 2026. The remaining models are restricted to months with contemporaneous USDA SNAP caseload data, which were available through May 2026. Contemporaneous SNAP household and person counts are entered in logarithmic form. Retailer models include the post-submission/pre-implementation indicator, state and biweekly-period fixed effects, log population density, SNAP household share, White population share, median household income, and the post-H.R.1 × baseline SNAP participation interaction. Standard errors are clustered by state. Percentage retailer changes are calculated relative to the treated-state pre-implementation mean.

Appendix Table A6. Conventional and wild-cluster-bootstrap inference for primary waiver implementation estimates

Outcome	Estimate, stores per 100 tracts	Conventional 95% CI	Conventional P-value	Wild-bootstrap 95% CI	Wild-bootstrap P-value
Convenience stores	−3.05	−5.72 to −0.37	0.026	−5.80 to 0.29	0.075
Supermarkets/superstores	−0.38	−1.56 to 0.80	0.522	−1.96 to 0.92	0.549

Note: Estimates are coefficients on the waiver implementation indicator from the primary adjusted two-way fixed-effects difference-in-differences models and are expressed as changes in SNAP-authorized stores per 100 census tracts. Conventional 95% confidence intervals and P-values use standard errors clustered by state. Wild-cluster-bootstrap inference also clusters by state and uses 9,999 replications with Webb weights and symmetric two-sided P-values. For the bootstrap analysis, the primary specification was estimated equivalently by absorbing state fixed effects and including biweekly-period fixed effects as indicator variables. Both specifications also include the post-submission/pre-implementation indicator and the covariates used in the primary analysis.