

# TWFE Event Study

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October 27, 2025

## With Anticipation (Levels)

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## OLS estimation, Dep. Var.: rn_hppd
## Observations: 638,048
## Fixed-effects: cms_certification_number: 7,814, year_month: 90
## Standard-errors: Clustered (cms_certification_number & year_month)
##
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	Estimate	Std. Error	t value	Pr(> t )	
## event_time::-24:ever_treated	0.039623	0.008426	4.7026	0.0000093376	***
## event_time::-23:ever_treated	0.028873	0.008030	3.5955	0.0005309228	***
## event_time::-22:ever_treated	0.027252	0.008124	3.3545	0.0011699463	**
## event_time::-21:ever_treated	0.026102	0.007768	3.3604	0.0011481105	**
## event_time::-20:ever_treated	0.032915	0.008219	4.0047	0.0001284493	***
## event_time::-19:ever_treated	0.023129	0.007342	3.1504	0.0022212528	**
## event_time::-18:ever_treated	0.021418	0.007830	2.7354	0.0075196559	**
## event_time::-17:ever_treated	0.023208	0.007587	3.0591	0.0029328368	**
## event_time::-16:ever_treated	0.024114	0.007489	3.2201	0.0017895317	**
## event_time::-15:ever_treated	0.022469	0.006853	3.2788	0.0014884421	**
## event_time::-14:ever_treated	0.024312	0.006988	3.4790	0.0007811762	***
## event_time::-13:ever_treated	0.029325	0.006320	4.6397	0.0000119373	***
## event_time::-12:ever_treated	0.030298	0.006229	4.8638	0.0000049348	***
## event_time::-11:ever_treated	0.032003	0.006482	4.9373	0.0000036755	***
## event_time::-10:ever_treated	0.031837	0.006294	5.0580	0.0000022561	***
## event_time::-9:ever_treated	0.029630	0.006435	4.6047	0.0000136787	***
## event_time::-8:ever_treated	0.030272	0.006607	4.5819	0.0000149358	***
## event_time::-7:ever_treated	0.022434	0.006439	3.4840	0.0007686285	***
## event_time::-6:ever_treated	0.024602	0.006201	3.9677	0.0001466079	***
## event_time::-5:ever_treated	0.020015	0.011108	1.8019	0.0749511614	.
## event_time::-4:ever_treated	0.030241	0.006011	5.0309	0.0000025182	***
## event_time::-3:ever_treated	0.023932	0.005609	4.2667	0.0000493764	***
## event_time::-2:ever_treated	0.013102	0.005109	2.5646	0.0120034862	*
## event_time::0:ever_treated	-0.004291	0.007056	-0.6082	0.5445953577	
## event_time::1:ever_treated	-0.000069	0.004724	-0.0147	0.9883055910	
## event_time::2:ever_treated	0.003488	0.005958	0.5854	0.5597331185	
## event_time::3:ever_treated	0.004852	0.005537	0.8762	0.3832537125	
## event_time::4:ever_treated	0.002014	0.006671	0.3020	0.7633703532	
## event_time::5:ever_treated	0.007182	0.009347	0.7684	0.4442918135	
## event_time::6:ever_treated	0.005599	0.008546	0.6552	0.5140570008	

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## event_time::7:ever_treated    0.005494    0.011598    0.4737 0.6368710491
## event_time::8:ever_treated   -0.002855    0.007299   -0.3912 0.6965919153
## event_time::9:ever_treated    0.002741    0.007121    0.3850 0.7011738060
## event_time::10:ever_treated   0.000752    0.007271    0.1034 0.9178986428
## event_time::11:ever_treated   0.004093    0.007714    0.5306 0.5970327969
## event_time::12:ever_treated   0.006608    0.008205    0.8053 0.4227673063
## event_time::13:ever_treated   0.001422    0.008543    0.1664 0.8681960263
## event_time::14:ever_treated  -0.009035    0.009185   -0.9836 0.3279894621
## event_time::15:ever_treated   0.002155    0.007700    0.2799 0.7802091094
## event_time::16:ever_treated   0.000195    0.007413    0.0263 0.9791042580
## event_time::17:ever_treated  -0.002467    0.007170   -0.3441 0.7315804841
## event_time::18:ever_treated   0.000763    0.007517    0.1015 0.9193453506
## event_time::19:ever_treated  -0.001269    0.008334   -0.1522 0.8793496047
## event_time::20:ever_treated  -0.003955    0.008346   -0.4739 0.6367195094
## event_time::21:ever_treated  -0.002801    0.008942   -0.3132 0.7548419818
## event_time::22:ever_treated  -0.005361    0.008152   -0.6576 0.5124906934
## event_time::23:ever_treated   0.000609    0.008150    0.0748 0.9405738456
## event_time::24:ever_treated  -0.003802    0.007517   -0.5059 0.6142101660
## government                    -0.002825    0.008271   -0.3416 0.7334649506
## non_profit                    0.015788    0.012159    1.2985 0.1974796668
## chain                         0.001037    0.004657    0.2226 0.8243444471
## beds                         -0.000763    0.000170   -4.4895 0.0000213141 ***
## occupancy_rate                -0.002529    0.000212  -11.9576 < 2.2e-16 ***
## pct_medicare                  0.001245    0.000752    1.6556 0.1013236686
## pct_medicaid                 -0.000011    0.000099   -0.1090 0.9134561193
## cm_q_state_2                  -0.004717    0.003119   -1.5124 0.1339764721
## cm_q_state_3                  -0.005516    0.006849   -0.8054 0.4227172369
## cm_q_state_4                  -0.010673    0.020055   -0.5322 0.5959360072
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 2.22728      Adj. R2: 0.024899
##                      Within R2: 9.876e-5

## OLS estimation, Dep. Var.: lpn_hppd
## Observations: 638,048
## Fixed-effects: cms_certification_number: 7,814,  year_month: 90
## Standard-errors: Clustered (cms_certification_number & year_month)
##                      Estimate Std. Error  t value    Pr(>|t|)
## event_time::-24:ever_treated  0.022592    0.013913    1.6238 0.107961442
## event_time::-23:ever_treated  0.041502    0.014385    2.8851 0.004908188 **
## event_time::-22:ever_treated  0.042462    0.014335    2.9622 0.003916996 **
## event_time::-21:ever_treated  0.039614    0.014209    2.7878 0.006486983 **
## event_time::-20:ever_treated  0.041988    0.013360    3.1428 0.002273162 **
## event_time::-19:ever_treated  0.043853    0.013539    3.2390 0.001687136 **
## event_time::-18:ever_treated  0.050362    0.014147    3.5598 0.000598080 ***
## event_time::-17:ever_treated  0.053376    0.013931    3.8314 0.000236982 ***
## event_time::-16:ever_treated  0.045215    0.013949    3.2414 0.001674033 **
## event_time::-15:ever_treated  0.046196    0.013727    3.3655 0.001129459 **

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## event_time::-14:ever_treated	0.052104	0.014086	3.6989	0.000374242	***
## event_time::-13:ever_treated	0.053657	0.014309	3.7500	0.000314155	***
## event_time::-12:ever_treated	0.054432	0.013385	4.0666	0.000102811	***
## event_time::-11:ever_treated	0.049382	0.014296	3.4542	0.000847437	***
## event_time::-10:ever_treated	0.043619	0.014102	3.0931	0.002646060	**
## event_time::-9:ever_treated	0.034745	0.014931	2.3271	0.022229317	*
## event_time::-8:ever_treated	0.037050	0.012361	2.9973	0.003529210	**
## event_time::-7:ever_treated	0.030078	0.013079	2.2997	0.023806959	*
## event_time::-6:ever_treated	0.035204	0.013542	2.5996	0.010926931	*
## event_time::-5:ever_treated	0.029567	0.012798	2.3103	0.023182617	*
## event_time::-4:ever_treated	0.027891	0.012171	2.2916	0.024286880	*
## event_time::-3:ever_treated	0.024459	0.013252	1.8457	0.068263641	.
## event_time::-2:ever_treated	0.011245	0.014112	0.7969	0.427647889	
## event_time::0:ever_treated	0.009898	0.013889	0.7127	0.477902052	
## event_time::1:ever_treated	0.019252	0.013860	1.3890	0.168294155	
## event_time::2:ever_treated	0.029208	0.012387	2.3579	0.020568889	*
## event_time::3:ever_treated	0.035131	0.013756	2.5538	0.012355238	*
## event_time::4:ever_treated	0.030596	0.014701	2.0812	0.040289652	*
## event_time::5:ever_treated	0.025742	0.012809	2.0097	0.047491542	*
## event_time::6:ever_treated	0.032774	0.015838	2.0693	0.041419003	*
## event_time::7:ever_treated	0.035181	0.015538	2.2642	0.025988552	*
## event_time::8:ever_treated	0.022045	0.013861	1.5904	0.115291429	
## event_time::9:ever_treated	0.028554	0.013005	2.1957	0.030717077	*
## event_time::10:ever_treated	0.031171	0.014094	2.2116	0.029553030	*
## event_time::11:ever_treated	0.026024	0.013726	1.8960	0.061201360	.
## event_time::12:ever_treated	0.030340	0.013461	2.2538	0.026662850	*
## event_time::13:ever_treated	0.023222	0.013665	1.6993	0.092750391	.
## event_time::14:ever_treated	0.020439	0.013448	1.5198	0.132093704	
## event_time::15:ever_treated	0.026928	0.014026	1.9199	0.058073759	.
## event_time::16:ever_treated	0.036903	0.013886	2.6576	0.009328749	**
## event_time::17:ever_treated	0.037329	0.014294	2.6115	0.010580438	*
## event_time::18:ever_treated	0.037823	0.012670	2.9852	0.003658524	**
## event_time::19:ever_treated	0.030323	0.014159	2.1417	0.034952848	*
## event_time::20:ever_treated	0.028454	0.012949	2.1974	0.030585309	*
## event_time::21:ever_treated	0.033356	0.013086	2.5489	0.012517902	*
## event_time::22:ever_treated	0.030891	0.013785	2.2409	0.027522285	*
## event_time::23:ever_treated	0.029870	0.013561	2.2027	0.030199340	*
## event_time::24:ever_treated	0.040758	0.013366	3.0494	0.003019612	**
## government	-0.016846	0.009455	-1.7817	0.078208129	.
## non_profit	0.001883	0.012982	0.1450	0.885027483	
## chain	-0.014575	0.005734	-2.5420	0.012753444	*
## beds	-0.000138	0.000141	-0.9768	0.331334763	
## occupancy_rate	-0.003301	0.000202	-16.3112	< 2.2e-16	***
## pct_medicare	0.001264	0.000294	4.3015	0.000043380	***
## pct_medicaid	-0.000205	0.000115	-1.7877	0.077227252	.
## cm_q_state_2	-0.000188	0.002215	-0.0849	0.932493275	
## cm_q_state_3	0.003783	0.002706	1.3980	0.165591065	
## cm_q_state_4	0.014976	0.003435	4.3600	0.000034839	***

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## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 0.322668      Adj. R2: 0.429654
##                      Within R2: 0.0071

## OLS estimation, Dep. Var.: cna_hppd
## Observations: 638,048
## Fixed-effects: cms_certification_number: 7,814,  year_month: 90
## Standard-errors: Clustered (cms_certification_number & year_month)
##
##                      Estimate Std. Error t value      Pr(>|t|)
## event_time::-24:ever_treated  0.104044    0.022591    4.606 0.0000136299 ***
## event_time::-23:ever_treated  0.101508    0.024312    4.175 0.0000692341 ***
## event_time::-22:ever_treated  0.101440    0.024698    4.107 0.0000887140 ***
## event_time::-21:ever_treated  0.099206    0.026388    3.759 0.0003040873 ***
## event_time::-20:ever_treated  0.110344    0.025221    4.375 0.0000329108 ***
## event_time::-19:ever_treated  0.105085    0.023690    4.436 0.0000261476 ***
## event_time::-18:ever_treated  0.102983    0.023079    4.462 0.0000236519 ***
## event_time::-17:ever_treated  0.108161    0.023746    4.555 0.0000165817 ***
## event_time::-16:ever_treated  0.088628    0.023944    3.701 0.0003710554 ***
## event_time::-15:ever_treated  0.098791    0.023511    4.202 0.0000627597 ***
## event_time::-14:ever_treated  0.096717    0.022946    4.215 0.0000597877 ***
## event_time::-13:ever_treated  0.108716    0.022712    4.787 0.0000067003 ***
## event_time::-12:ever_treated  0.106072    0.020903    5.075 0.0000021080 ***
## event_time::-11:ever_treated  0.101975    0.024931    4.090 0.0000943655 ***
## event_time::-10:ever_treated  0.099560    0.024717    4.028 0.0001181650 ***
## event_time::-9:ever_treated   0.091169    0.024535    3.716 0.0003531965 ***
## event_time::-8:ever_treated   0.098764    0.024521    4.028 0.0001182696 ***
## event_time::-7:ever_treated   0.085552    0.023345    3.665 0.0004205328 ***
## event_time::-6:ever_treated   0.095281    0.022903    4.160 0.0000731433 ***
## event_time::-5:ever_treated   0.091266    0.022477    4.060 0.0001051566 ***
## event_time::-4:ever_treated   0.085795    0.021024    4.081 0.0000976247 ***
## event_time::-3:ever_treated   0.079321    0.022161    3.579 0.0005603374 ***
## event_time::-2:ever_treated   0.041800    0.022083    1.893 0.0616267637 .
## event_time::0:ever_treated    0.004660    0.023590    0.198 0.8438681756
## event_time::1:ever_treated    0.026225    0.022311    1.175 0.2429611301
## event_time::2:ever_treated    0.040090    0.021109    1.899 0.0607792928 .
## event_time::3:ever_treated    0.051601    0.022989    2.245 0.0272722149 *
## event_time::4:ever_treated    0.050786    0.023148    2.194 0.0308425412 *
## event_time::5:ever_treated    0.062664    0.026149    2.396 0.0186488360 *
## event_time::6:ever_treated    0.062970    0.025565    2.463 0.0156975331 *
## event_time::7:ever_treated    0.062594    0.028976    2.160 0.0334438957 *
## event_time::8:ever_treated    0.029912    0.023707    1.262 0.2103463738
## event_time::9:ever_treated    0.040216    0.021725    1.851 0.0674695032 .
## event_time::10:ever_treated   0.036773    0.025391    1.448 0.1510513892
## event_time::11:ever_treated   0.032691    0.024273    1.347 0.1814708712
## event_time::12:ever_treated   0.044162    0.022753    1.941 0.0554310583 .
## event_time::13:ever_treated   0.038871    0.025882    1.502 0.1366634724
## event_time::14:ever_treated   0.027289    0.023873    1.143 0.2560556881

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## event_time::15:ever_treated    0.031134    0.024840    1.253 0.2133558931
## event_time::16:ever_treated    0.048209    0.024617    1.958 0.0533187301 .
## event_time::17:ever_treated    0.047651    0.023387    2.038 0.0445666236 *
## event_time::18:ever_treated    0.060684    0.025240    2.404 0.0182770531 *
## event_time::19:ever_treated    0.048876    0.022841    2.140 0.0351043689 *
## event_time::20:ever_treated    0.036627    0.022589    1.621 0.1084525861
## event_time::21:ever_treated    0.038918    0.022611    1.721 0.0886973793 .
## event_time::22:ever_treated    0.034941    0.024938    1.401 0.1646561389
## event_time::23:ever_treated    0.033931    0.025033    1.355 0.1787074919
## event_time::24:ever_treated    0.051398    0.022595    2.275 0.0253259934 *
## government                     -0.027362    0.015724   -1.740 0.0852900623 .
## non_profit                     0.040418    0.021348    1.893 0.0615659225 .
## chain                         -0.042105    0.008951   -4.704 0.0000092774 ***
## beds                          -0.000852    0.000256   -3.333 0.0012528409 **
## occupancy_rate                 -0.003972    0.000354  -11.206 < 2.2e-16 ***
## pct_medicare                   0.000986    0.000503    1.960 0.0531046562 .
## pct_medicaid                 -0.000678    0.000194   -3.486 0.0007624335 ***
## cm_q_state_2                   0.006233    0.004351    1.433 0.1554626512
## cm_q_state_3                   0.024452    0.005765    4.242 0.0000541736 ***
## cm_q_state_4                   0.036828    0.007683    4.793 0.0000065299 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 0.932373      Adj. R2: 0.209845
##                               Within R2: 0.001524

## OLS estimation, Dep. Var.: total_hppd
## Observations: 638,048
## Fixed-effects: cms_certification_number: 7,814, year_month: 90
## Standard-errors: Clustered (cms_certification_number & year_month)
##                               Estimate Std. Error t value      Pr(>|t|)
## event_time::-24:ever_treated  0.166258    0.037023    4.491 0.00002121342 ***
## event_time::-23:ever_treated  0.171883    0.039364    4.366 0.00003399616 ***
## event_time::-22:ever_treated  0.171154    0.040399    4.237 0.00005520294 ***
## event_time::-21:ever_treated  0.164922    0.041940    3.932 0.00016624643 ***
## event_time::-20:ever_treated  0.185247    0.040295    4.597 0.00001407570 ***
## event_time::-19:ever_treated  0.172067    0.037661    4.569 0.00001571076 ***
## event_time::-18:ever_treated  0.174762    0.038142    4.582 0.00001494062 ***
## event_time::-17:ever_treated  0.184746    0.038021    4.859 0.00000502893 ***
## event_time::-16:ever_treated  0.157957    0.037653    4.195 0.00006435552 ***
## event_time::-15:ever_treated  0.167456    0.037369    4.481 0.00002200507 ***
## event_time::-14:ever_treated  0.173134    0.037141    4.662 0.00001096410 ***
## event_time::-13:ever_treated  0.191698    0.037477    5.115 0.00000178649 ***
## event_time::-12:ever_treated  0.190803    0.034772    5.487 0.00000037983 ***
## event_time::-11:ever_treated  0.183360    0.041157    4.455 0.00002429994 ***
## event_time::-10:ever_treated  0.175016    0.039643    4.415 0.00002831808 ***
## event_time::-9:ever_treated   0.155544    0.040551    3.836 0.00023344504 ***
## event_time::-8:ever_treated   0.166086    0.038501    4.314 0.00004142013 ***
## event_time::-7:ever_treated   0.138064    0.037739    3.658 0.00042954554 ***

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## event_time::-6:ever_treated    0.155087    0.037308    4.157 0.00007401626 ***
## event_time::-5:ever_treated    0.140849    0.039495    3.566 0.00058548607 ***
## event_time::-4:ever_treated    0.143927    0.035287    4.079 0.00009839314 ***
## event_time::-3:ever_treated    0.127712    0.037286    3.425 0.00093127052 ***
## event_time::-2:ever_treated    0.066147    0.038262    1.729 0.08731760441 .
## event_time::0:ever_treated     0.010266    0.038721    0.265 0.79151783507
## event_time::1:ever_treated     0.045408    0.036926    1.230 0.22205676858
## event_time::2:ever_treated     0.072786    0.033127    2.197 0.03060413124 *
## event_time::3:ever_treated     0.091583    0.036506    2.509 0.01392772503 *
## event_time::4:ever_treated     0.083396    0.038209    2.183 0.03169526719 *
## event_time::5:ever_treated     0.095588    0.041863    2.283 0.02478890034 *
## event_time::6:ever_treated     0.101343    0.042077    2.408 0.01808062391 *
## event_time::7:ever_treated     0.103269    0.049987    2.066 0.04174605442 *
## event_time::8:ever_treated     0.049101    0.038007    1.292 0.19973490994
## event_time::9:ever_treated     0.071511    0.034369    2.081 0.04033774290 *
## event_time::10:ever_treated    0.068695    0.040130    1.712 0.09041026278 .
## event_time::11:ever_treated    0.062808    0.039334    1.597 0.11386246385
## event_time::12:ever_treated    0.081110    0.037991    2.135 0.03550866507 *
## event_time::13:ever_treated    0.063515    0.040802    1.557 0.12309343026
## event_time::14:ever_treated    0.038694    0.037578    1.030 0.30594360965
## event_time::15:ever_treated    0.060217    0.038742    1.554 0.12366285310
## event_time::16:ever_treated    0.085307    0.039467    2.161 0.03334288771 *
## event_time::17:ever_treated    0.082513    0.037054    2.227 0.02848341024 *
## event_time::18:ever_treated    0.099271    0.039070    2.541 0.01279087638 *
## event_time::19:ever_treated    0.077930    0.036745    2.121 0.03671901802 *
## event_time::20:ever_treated    0.061126    0.035365    1.728 0.08737966072 .
## event_time::21:ever_treated    0.069473    0.036763    1.890 0.06204500779 .
## event_time::22:ever_treated    0.060471    0.038850    1.557 0.12313091213
## event_time::23:ever_treated    0.064410    0.039500    1.631 0.10650646541
## event_time::24:ever_treated    0.088353    0.036299    2.434 0.01692859244 *
## government                     -0.047033    0.019937   -2.359 0.02050707262 *
## non_profit                     0.058088    0.030917    1.879 0.06353527924 .
## chain                         -0.055644    0.012763   -4.360 0.00003484326 ***
## beds                          -0.001753    0.000426   -4.115 0.00008626747 ***
## occupancy_rate                -0.009802    0.000567  -17.302 < 2.2e-16 ***
## pct_medicare                  0.003496    0.001113    3.142 0.00227902088 **
## pct_medicaid                 -0.000893    0.000289   -3.085 0.00270954015 **
## cm_q_state_2                  0.001328    0.007169    0.185 0.85348840715
## cm_q_state_3                  0.022719    0.011277    2.015 0.04695693214 *
## cm_q_state_4                  0.041132    0.024148    1.703 0.09200412045 .
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 2.57631      Adj. R2: 0.080924
##                   Within R2: 0.001032

```

## With Anticipation (Logs)

```
## OLS estimation, Dep. Var.: ln_rn
```

```

## Observations: 631,246
## Fixed-effects: cms_certification_number: 7,811, year_month: 90
## Standard-errors: Clustered (cms_certification_number & year_month)
##
##      Estimate Std. Error   t value    Pr(>|t|)
## event_time::-24:ever_treated  0.102436   0.022356   4.58207 0.0000149289028 ***
## event_time::-23:ever_treated  0.076391   0.026111   2.92567 0.0043608250608 **
## event_time::-22:ever_treated  0.067584   0.027708   2.43920 0.0167041789949 *
## event_time::-21:ever_treated  0.071261   0.027263   2.61383 0.0105126170018 *
## event_time::-20:ever_treated  0.089203   0.024491   3.64224 0.0004536323686 ***
## event_time::-19:ever_treated  0.065186   0.023916   2.72559 0.0077284338561 **
## event_time::-18:ever_treated  0.058399   0.027695   2.10863 0.0377862714471 *
## event_time::-17:ever_treated  0.061693   0.025736   2.39719 0.0186120782883 *
## event_time::-16:ever_treated  0.066573   0.022488   2.96041 0.0039374376525 **
## event_time::-15:ever_treated  0.069033   0.021732   3.17656 0.0020487524534 **
## event_time::-14:ever_treated  0.062874   0.026792   2.34669 0.0211605021853 *
## event_time::-13:ever_treated  0.085343   0.023417   3.64443 0.0004503017992 ***
## event_time::-12:ever_treated  0.091869   0.022826   4.02468 0.0001195766062 ***
## event_time::-11:ever_treated  0.090030   0.020738   4.34140 0.0000373546488 ***
## event_time::-10:ever_treated  0.081721   0.018963   4.30943 0.0000421063376 ***
## event_time::-9:ever_treated   0.067829   0.020459   3.31538 0.0013254936620 **
## event_time::-8:ever_treated   0.078073   0.022508   3.46868 0.0008081211423 ***
## event_time::-7:ever_treated   0.070898   0.019237   3.68552 0.0003917252714 ***
## event_time::-6:ever_treated   0.073640   0.020573   3.57955 0.0005599992706 ***
## event_time::-5:ever_treated   0.076960   0.021381   3.59948 0.0005238472667 ***
## event_time::-4:ever_treated   0.074123   0.021565   3.43717 0.0008956835905 ***
## event_time::-3:ever_treated   0.043726   0.020657   2.11674 0.0370731245711 *
## event_time::-2:ever_treated   0.030332   0.017180   1.76561 0.0808916449468 .
## event_time::0:ever_treated    -0.022721   0.019778  -1.14881 0.2537132216815
## event_time::1:ever_treated    -0.026316   0.023649  -1.11278 0.2688007313638
## event_time::2:ever_treated    -0.011680   0.021826  -0.53513 0.5938958963748
## event_time::3:ever_treated    -0.003493   0.022902  -0.15250 0.8791408299878
## event_time::4:ever_treated    -0.007096   0.024221  -0.29295 0.7702429811028
## event_time::5:ever_treated     0.002024   0.031762   0.06373 0.9493296287269
## event_time::6:ever_treated     0.001754   0.030634   0.05727 0.9544602388521
## event_time::7:ever_treated    -0.000226   0.037923  -0.00596 0.9952560773750
## event_time::8:ever_treated    -0.021568   0.022422  -0.96190 0.3387070228175
## event_time::9:ever_treated    -0.002382   0.026924  -0.08846 0.9297079892344
## event_time::10:ever_treated    0.001181   0.027411   0.04310 0.9657224418407
## event_time::11:ever_treated   -0.003358   0.024136  -0.13912 0.8896680375316
## event_time::12:ever_treated   -0.014645   0.028367  -0.51626 0.6069498285737
## event_time::13:ever_treated   -0.014850   0.026934  -0.55133 0.5827909413127
## event_time::14:ever_treated   -0.016244   0.027560  -0.58943 0.5570687105755
## event_time::15:ever_treated   -0.002897   0.026461  -0.10948 0.9130642498334
## event_time::16:ever_treated    0.007138   0.025523   0.27966 0.7803869690485
## event_time::17:ever_treated    0.004699   0.025084   0.18731 0.8518407670530
## event_time::18:ever_treated    0.002526   0.025738   0.09815 0.9220326975068
## event_time::19:ever_treated    0.004869   0.023454   0.20760 0.8360147718135
## event_time::20:ever_treated    0.004626   0.026768   0.17283 0.8631749090238

```

```

## event_time::21:ever_treated -0.006496 0.027815 -0.23356 0.8158615767465
## event_time::22:ever_treated 0.003301 0.029097 0.11345 0.9099297345766
## event_time::23:ever_treated -0.002782 0.028872 -0.09637 0.9234468606864
## event_time::24:ever_treated -0.014016 0.024286 -0.57712 0.5653125528082
## government 0.009551 0.029620 0.32246 0.7478634457761
## non_profit 0.065657 0.029401 2.23319 0.0280443338590 *
## chain 0.014100 0.013111 1.07539 0.2851089073937
## beds -0.000696 0.000250 -2.78406 0.0065567509501 **
## occupancy_rate -0.003818 0.000323 -11.81704 < 2.2e-16 ***
## pct_medicare 0.003647 0.000572 6.37242 0.0000000080151 ***
## pct_medicaid 0.000164 0.000243 0.67377 0.5022019535783
## cm_q_state_2 0.010020 0.004993 2.00693 0.0477919914468 *
## cm_q_state_3 0.021908 0.006260 3.49959 0.0007301105592 ***
## cm_q_state_4 0.039922 0.007624 5.23650 0.0000010842993 ***
## ---
## Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 0.448576 Adj. R2: 0.686691
## Within R2: 0.00851

## OLS estimation, Dep. Var.: ln_lpn
## Observations: 632,179
## Fixed-effects: cms_certification_number: 7,797, year_month: 90
## Standard-errors: Clustered (cms_certification_number & year_month)
## Estimate Std. Error t value Pr(>|t|)
## event_time::-24:ever_treated 0.024899 0.017560 1.4179 0.15970182014036
## event_time::-23:ever_treated 0.037322 0.019229 1.9409 0.05542918728141 .
## event_time::-22:ever_treated 0.037929 0.017095 2.2188 0.02904740871613 *
## event_time::-21:ever_treated 0.029420 0.020204 1.4562 0.14886800731442
## event_time::-20:ever_treated 0.040556 0.017910 2.2644 0.02597758800479 *
## event_time::-19:ever_treated 0.041274 0.017918 2.3035 0.02358072911580 *
## event_time::-18:ever_treated 0.050934 0.017443 2.9201 0.00443241502393 **
## event_time::-17:ever_treated 0.053951 0.017224 3.1324 0.00234734775678 **
## event_time::-16:ever_treated 0.046898 0.016415 2.8570 0.00532408963027 **
## event_time::-15:ever_treated 0.050999 0.016903 3.0172 0.00332671422104 **
## event_time::-14:ever_treated 0.054170 0.016752 3.2337 0.00171518862941 **
## event_time::-13:ever_treated 0.061635 0.017329 3.5567 0.00060441573950 ***
## event_time::-12:ever_treated 0.059636 0.017069 3.4938 0.00074422562585 ***
## event_time::-11:ever_treated 0.047607 0.016945 2.8095 0.00609997326284 **
## event_time::-10:ever_treated 0.045876 0.017684 2.5942 0.01108742595595 *
## event_time::-9:ever_treated 0.036869 0.017966 2.0522 0.04308817127400 *
## event_time::-8:ever_treated 0.034482 0.016369 2.1066 0.03796768946831 *
## event_time::-7:ever_treated 0.024119 0.016475 1.4640 0.14672079158832
## event_time::-6:ever_treated 0.028459 0.017603 1.6168 0.10947130756299
## event_time::-5:ever_treated 0.028698 0.015472 1.8549 0.06692051229718 .
## event_time::-4:ever_treated 0.027109 0.016110 1.6828 0.09591927972268 .
## event_time::-3:ever_treated 0.026894 0.013552 1.9845 0.05027592030357 .
## event_time::-2:ever_treated 0.021620 0.016252 1.3303 0.18683271421634
## event_time::0:ever_treated -0.000831 0.015445 -0.0538 0.95719100693940

```



```

## event_time::1:ever_treated    0.014312    0.017610    0.8127 0.41854421612551
## event_time::2:ever_treated    0.029034    0.014318    2.0278 0.04557324638904 *
## event_time::3:ever_treated    0.022781    0.017181    1.3260 0.18824908289543
## event_time::4:ever_treated    0.018409    0.015982    1.1518 0.25247176261217
## event_time::5:ever_treated    0.013589    0.016726    0.8124 0.41870641988156
## event_time::6:ever_treated    0.021528    0.017142    1.2558 0.21246567070098
## event_time::7:ever_treated    0.041929    0.019104    2.1948 0.03078373574190 *
## event_time::8:ever_treated    0.031157    0.017237    1.8076 0.07404165392208 .
## event_time::9:ever_treated    0.037923    0.017782    2.1326 0.03571043897253 *
## event_time::10:ever_treated   0.041107    0.018387    2.2356 0.02787812701066 *
## event_time::11:ever_treated   0.035970    0.017943    2.0047 0.04803341401120 *
## event_time::12:ever_treated   0.041584    0.016917    2.4581 0.01590365230148 *
## event_time::13:ever_treated   0.039630    0.017721    2.2363 0.02783164374517 *
## event_time::14:ever_treated   0.029872    0.018356    1.6273 0.10719992397260
## event_time::15:ever_treated   0.034435    0.018815    1.8301 0.07057616145822 .
## event_time::16:ever_treated   0.051618    0.016880    3.0579 0.00294357724307 **
## event_time::17:ever_treated   0.051540    0.019201    2.6842 0.00867086501197 **
## event_time::18:ever_treated   0.044058    0.017866    2.4660 0.01558009392250 *
## event_time::19:ever_treated   0.038540    0.018893    2.0400 0.04431930687295 *
## event_time::20:ever_treated   0.035999    0.017649    2.0397 0.04434169449164 *
## event_time::21:ever_treated   0.038576    0.018734    2.0592 0.04240187263351 *
## event_time::22:ever_treated   0.038487    0.018953    2.0306 0.04527703316701 *
## event_time::23:ever_treated   0.036083    0.018762    1.9232 0.05765566390622 .
## event_time::24:ever_treated   0.042778    0.017460    2.4501 0.01623786587263 *
## government                    -0.019561    0.015259   -1.2819 0.20320433266199
## non_profit                    -0.015411    0.024562   -0.6274 0.53198370073868
## chain                         -0.008686    0.007873   -1.1032 0.27291651747285
## beds                         0.000296    0.000288    1.0250 0.30812131882384
## occupancy_rate                -0.003405    0.000264  -12.9021 < 2.2e-16 ***
## pct_medicare                  0.001002    0.000396    2.5280 0.01323482801015 *
## pct_medicaid                 -0.000472    0.000185   -2.5576 0.01223317204076 *
## cm_q_state_2                  0.008824    0.003167    2.7867 0.00650870416542 **
## cm_q_state_3                  0.016479    0.003763    4.3787 0.00003246023730 ***
## cm_q_state_4                  0.030645    0.004476    6.8468 0.00000000093571 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 0.284548      Adj. R2: 0.658003
##                               Within R2: 0.01028

## OLS estimation, Dep. Var.: ln_cna
## Observations: 637,034
## Fixed-effects: cms_certification_number: 7,811, year_month: 90
## Standard-errors: Clustered (cms_certification_number & year_month)
##                               Estimate Std. Error t value      Pr(>|t|)
## event_time::-24:ever_treated  0.046843    0.017659    2.653 0.009455725777422602
## event_time::-23:ever_treated  0.051574    0.017796    2.898 0.004725581298157632
## event_time::-22:ever_treated  0.048706    0.018408    2.646 0.009631353173611579
## event_time::-21:ever_treated  0.045784    0.018736    2.444 0.016514237613345306

```

## event_time::-20:ever_treated	0.052156	0.019003	2.745	0.007328523082003471
## event_time::-19:ever_treated	0.048650	0.017946	2.711	0.008050389380950953
## event_time::-18:ever_treated	0.051163	0.017453	2.932	0.004286192004292263
## event_time::-17:ever_treated	0.052827	0.018345	2.880	0.004985497750311547
## event_time::-16:ever_treated	0.041875	0.017813	2.351	0.020943883720927821
## event_time::-15:ever_treated	0.049875	0.018022	2.767	0.006873074825576861
## event_time::-14:ever_treated	0.046411	0.016984	2.733	0.007579593323912897
## event_time::-13:ever_treated	0.053116	0.017524	3.031	0.003190979203332698
## event_time::-12:ever_treated	0.053176	0.016887	3.149	0.002230872962911236
## event_time::-11:ever_treated	0.050366	0.018299	2.752	0.007170105312963060
## event_time::-10:ever_treated	0.048808	0.018004	2.711	0.008048562758457337
## event_time::-9:ever_treated	0.046349	0.017868	2.594	0.011093098622906274
## event_time::-8:ever_treated	0.044428	0.019744	2.250	0.026899179399530987
## event_time::-7:ever_treated	0.041392	0.016375	2.528	0.013244647397051737
## event_time::-6:ever_treated	0.045426	0.017406	2.610	0.010627122529880966
## event_time::-5:ever_treated	0.043933	0.016573	2.651	0.009503638344621691
## event_time::-4:ever_treated	0.037336	0.018170	2.055	0.042829310342177719
## event_time::-3:ever_treated	0.038753	0.017120	2.264	0.026030684039747589
## event_time::-2:ever_treated	0.026698	0.018486	1.444	0.152190720544474439
## event_time::0:ever_treated	-0.003126	0.018838	-0.166	0.868594331535400555
## event_time::1:ever_treated	0.007862	0.018293	0.430	0.668370815146618336
## event_time::2:ever_treated	0.012371	0.019847	0.623	0.534656705411296507
## event_time::3:ever_treated	0.021027	0.017864	1.177	0.242297480181209030
## event_time::4:ever_treated	0.019412	0.018332	1.059	0.292520596559254831
## event_time::5:ever_treated	0.031418	0.019398	1.620	0.108847277375746343
## event_time::6:ever_treated	0.029919	0.018477	1.619	0.108923657256584677
## event_time::7:ever_treated	0.032362	0.018597	1.740	0.085282210466594829
## event_time::8:ever_treated	0.014524	0.017472	0.831	0.408039606017180256
## event_time::9:ever_treated	0.019298	0.018237	1.058	0.292842945615595596
## event_time::10:ever_treated	0.015643	0.018407	0.850	0.397687269300869506
## event_time::11:ever_treated	0.014890	0.018916	0.787	0.433275931911635936
## event_time::12:ever_treated	0.018760	0.017849	1.051	0.296079402584824070
## event_time::13:ever_treated	0.019168	0.020416	0.939	0.350328873898512527
## event_time::14:ever_treated	0.016233	0.018466	0.879	0.381729589854868823
## event_time::15:ever_treated	0.015719	0.018393	0.855	0.395051727427170429
## event_time::16:ever_treated	0.025023	0.018275	1.369	0.174359165200964089
## event_time::17:ever_treated	0.026656	0.019050	1.399	0.165206072027006629
## event_time::18:ever_treated	0.031134	0.018327	1.699	0.092851574113579222
## event_time::19:ever_treated	0.027599	0.017182	1.606	0.111768117324834951
## event_time::20:ever_treated	0.020153	0.017907	1.125	0.263439911360718926
## event_time::21:ever_treated	0.018055	0.018402	0.981	0.329179088975344536
## event_time::22:ever_treated	0.019632	0.018772	1.046	0.298464500868493965
## event_time::23:ever_treated	0.016873	0.019114	0.883	0.379751467315304736
## event_time::24:ever_treated	0.017634	0.017573	1.003	0.318348108335635316
## government	-0.028615	0.010320	-2.773	0.006769234812970172
## non_profit	0.018902	0.010613	1.781	0.078320201599910322
## chain	-0.018357	0.004509	-4.071	0.000101158716776771
## beds	-0.000315	0.000123	-2.566	0.011944385851351829

```

## occupancy_rate          -0.001487    0.000131 -11.356          < 2.2e-16
## pct_medicare            0.000219    0.000225   0.974 0.332687351434190481
## pct_medicaid          -0.000337    0.000088  -3.825 0.000242455146321219
## cm_q_state_2           0.009084    0.001772   5.126 0.000001711471588058
## cm_q_state_3           0.020926    0.002276   9.193 0.0000000000000014986
## cm_q_state_4           0.028072    0.002877   9.759 0.000000000000001008
##
## event_time::-24:ever_treated **
## event_time::-23:ever_treated **
## event_time::-22:ever_treated **
## event_time::-21:ever_treated *
## event_time::-20:ever_treated **
## event_time::-19:ever_treated **
## event_time::-18:ever_treated **
## event_time::-17:ever_treated **
## event_time::-16:ever_treated *
## event_time::-15:ever_treated **
## event_time::-14:ever_treated **
## event_time::-13:ever_treated **
## event_time::-12:ever_treated **
## event_time::-11:ever_treated **
## event_time::-10:ever_treated **
## event_time::-9:ever_treated *
## event_time::-8:ever_treated *
## event_time::-7:ever_treated *
## event_time::-6:ever_treated *
## event_time::-5:ever_treated **
## event_time::-4:ever_treated *
## event_time::-3:ever_treated *
## event_time::-2:ever_treated
## event_time::0:ever_treated
## event_time::1:ever_treated
## event_time::2:ever_treated
## event_time::3:ever_treated
## event_time::4:ever_treated
## event_time::5:ever_treated
## event_time::6:ever_treated
## event_time::7:ever_treated .
## event_time::8:ever_treated
## event_time::9:ever_treated
## event_time::10:ever_treated
## event_time::11:ever_treated
## event_time::12:ever_treated
## event_time::13:ever_treated
## event_time::14:ever_treated
## event_time::15:ever_treated
## event_time::16:ever_treated
## event_time::17:ever_treated

```

```

## event_time::18:ever_treated .
## event_time::19:ever_treated
## event_time::20:ever_treated
## event_time::21:ever_treated
## event_time::22:ever_treated
## event_time::23:ever_treated
## event_time::24:ever_treated
## government **
## non_profit .
## chain ***
## beds *
## occupancy_rate ***
## pct_medicare
## pct_medicaid ***
## cm_q_state_2 ***
## cm_q_state_3 ***
## cm_q_state_4 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 0.178566 Adj. R2: 0.620424
## Within R2: 0.007722

## OLS estimation, Dep. Var.: ln_total
## Observations: 637,425
## Fixed-effects: cms_certification_number: 7,814, year_month: 90
## Standard-errors: Clustered (cms_certification_number & year_month)
##
```

	Estimate	Std. Error	t value	Pr(> t )
## event_time::-24:ever_treated	0.058260	0.019908	2.927	0.00435003105574509
## event_time::-23:ever_treated	0.065690	0.019863	3.307	0.00136041408938425
## event_time::-22:ever_treated	0.065032	0.021416	3.037	0.00313853384743546
## event_time::-21:ever_treated	0.062639	0.020842	3.005	0.00344549417006326
## event_time::-20:ever_treated	0.068112	0.021326	3.194	0.00194200633668452
## event_time::-19:ever_treated	0.064721	0.020054	3.227	0.00175003695914838
## event_time::-18:ever_treated	0.069395	0.019846	3.497	0.00073713460737067
## event_time::-17:ever_treated	0.068327	0.020230	3.378	0.00108623663751613
## event_time::-16:ever_treated	0.055740	0.020323	2.743	0.00736576995763548
## event_time::-15:ever_treated	0.065378	0.020229	3.232	0.00172439233445371
## event_time::-14:ever_treated	0.064610	0.019186	3.367	0.00112214512390656
## event_time::-13:ever_treated	0.073131	0.019906	3.674	0.00040770808876603
## event_time::-12:ever_treated	0.074454	0.019318	3.854	0.00021886397237671
## event_time::-11:ever_treated	0.070307	0.020483	3.433	0.00090939214673278
## event_time::-10:ever_treated	0.068592	0.020277	3.383	0.00106824479692518
## event_time::-9:ever_treated	0.056740	0.022302	2.544	0.01267714130972091
## event_time::-8:ever_treated	0.064544	0.021497	3.003	0.00347510987968368
## event_time::-7:ever_treated	0.058798	0.019163	3.068	0.00285294627431945
## event_time::-6:ever_treated	0.064137	0.019988	3.209	0.00185380011602395
## event_time::-5:ever_treated	0.059928	0.018962	3.160	0.00215379250096007
## event_time::-4:ever_treated	0.056941	0.019898	2.862	0.00525328623751103

## event_time::-3:ever_treated	0.056708	0.019105	2.968	0.00384819740160704
## event_time::-2:ever_treated	0.042463	0.021547	1.971	0.05186697231881236
## event_time::0:ever_treated	0.015843	0.021071	0.752	0.45410194825427452
## event_time::1:ever_treated	0.026953	0.020915	1.289	0.20085020310660634
## event_time::2:ever_treated	0.028250	0.023599	1.197	0.23444928473848153
## event_time::3:ever_treated	0.032206	0.020693	1.556	0.12316518726430414
## event_time::4:ever_treated	0.034462	0.019262	1.789	0.07700295608372799
## event_time::5:ever_treated	0.041461	0.022714	1.825	0.07130140174792673
## event_time::6:ever_treated	0.043396	0.020239	2.144	0.03474797308245407
## event_time::7:ever_treated	0.047715	0.021634	2.206	0.02998786823772524
## event_time::8:ever_treated	0.030620	0.019724	1.552	0.12411049701563293
## event_time::9:ever_treated	0.037332	0.020291	1.840	0.06911997667633483
## event_time::10:ever_treated	0.036228	0.020733	1.747	0.08402200835167016
## event_time::11:ever_treated	0.034322	0.020629	1.664	0.09968422534134934
## event_time::12:ever_treated	0.036288	0.020136	1.802	0.07490401039242836
## event_time::13:ever_treated	0.035851	0.021273	1.685	0.09544819154765639
## event_time::14:ever_treated	0.029924	0.020555	1.456	0.14896189604607640
## event_time::15:ever_treated	0.032613	0.020037	1.628	0.10713332524808723
## event_time::16:ever_treated	0.040655	0.020052	2.027	0.04560403959751639
## event_time::17:ever_treated	0.044049	0.020847	2.113	0.03740402530584017
## event_time::18:ever_treated	0.046211	0.019875	2.325	0.02233860546888001
## event_time::19:ever_treated	0.041743	0.019336	2.159	0.03355751809933365
## event_time::20:ever_treated	0.036353	0.019768	1.839	0.06925184058872914
## event_time::21:ever_treated	0.033869	0.020523	1.650	0.10240610583120487
## event_time::22:ever_treated	0.035494	0.019560	1.815	0.07295028163174241
## event_time::23:ever_treated	0.033946	0.021444	1.583	0.11695588415719893
## event_time::24:ever_treated	0.036558	0.019666	1.859	0.06634192754174868
## government	-0.020991	0.007267	-2.888	0.00486116667084905
## non_profit	0.019728	0.009794	2.014	0.04700422552003860
## chain	-0.012570	0.003926	-3.202	0.00189416574499600
## beds	-0.000396	0.000118	-3.346	0.00120234964837367
## occupancy_rate	-0.002361	0.000136	-17.401	< 2.2e-16
## pct_medicare	0.000854	0.000202	4.233	0.00005591128744946
## pct_medicaid	-0.000264	0.000080	-3.292	0.00142849649592236
## cm_q_state_2	0.007778	0.001621	4.797	0.00000643485563642
## cm_q_state_3	0.017991	0.002053	8.764	0.00000000000011584
## cm_q_state_4	0.027994	0.002646	10.578	< 2.2e-16
##				
## event_time::-24:ever_treated **				
## event_time::-23:ever_treated **				
## event_time::-22:ever_treated **				
## event_time::-21:ever_treated **				
## event_time::-20:ever_treated **				
## event_time::-19:ever_treated **				
## event_time::-18:ever_treated ***				
## event_time::-17:ever_treated **				
## event_time::-16:ever_treated **				
## event_time::-15:ever_treated **				

```

## event_time::-14:ever_treated **
## event_time::-13:ever_treated ***
## event_time::-12:ever_treated ***
## event_time::-11:ever_treated ***
## event_time::-10:ever_treated **
## event_time::-9:ever_treated *
## event_time::-8:ever_treated **
## event_time::-7:ever_treated **
## event_time::-6:ever_treated **
## event_time::-5:ever_treated **
## event_time::-4:ever_treated **
## event_time::-3:ever_treated **
## event_time::-2:ever_treated .
## event_time::0:ever_treated
## event_time::1:ever_treated
## event_time::2:ever_treated
## event_time::3:ever_treated
## event_time::4:ever_treated .
## event_time::5:ever_treated .
## event_time::6:ever_treated *
## event_time::7:ever_treated *
## event_time::8:ever_treated
## event_time::9:ever_treated .
## event_time::10:ever_treated .
## event_time::11:ever_treated .
## event_time::12:ever_treated .
## event_time::13:ever_treated .
## event_time::14:ever_treated
## event_time::15:ever_treated
## event_time::16:ever_treated *
## event_time::17:ever_treated *
## event_time::18:ever_treated *
## event_time::19:ever_treated *
## event_time::20:ever_treated .
## event_time::21:ever_treated
## event_time::22:ever_treated .
## event_time::23:ever_treated
## event_time::24:ever_treated .
## government **
## non_profit *
## chain **
## beds **
## occupancy_rate ***
## pct_medicare ***
## pct_medicaid **
## cm_q_state_2 ***
## cm_q_state_3 ***
## cm_q_state_4 ***

```

```
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 0.160846      Adj. R2: 0.622802
##                      Within R2: 0.017667
```

## Excluding Anticipation (Levels)

```
## OLS estimation, Dep. Var.: rn_hppd
## Observations: 629,587
## Fixed-effects: cms_certification_number: 7,813, year_month: 90
## Standard-errors: Clustered (cms_certification_number & year_month)
##
```

	Estimate	Std. Error	t value	Pr(> t )	
## event_time::-24:ever_treated	0.009067	0.006828	1.32800	0.18757282151	
## event_time::-23:ever_treated	-0.001789	0.007372	-0.24271	0.80879205822	
## event_time::-22:ever_treated	-0.003331	0.005995	-0.55575	0.57977418493	
## event_time::-21:ever_treated	-0.004505	0.005634	-0.79953	0.42611480255	
## event_time::-20:ever_treated	0.002430	0.006562	0.37034	0.71201095666	
## event_time::-19:ever_treated	-0.007476	0.006591	-1.13435	0.25969251360	
## event_time::-18:ever_treated	-0.008997	0.006086	-1.47816	0.14289390921	
## event_time::-17:ever_treated	-0.007168	0.005591	-1.28193	0.20319769125	
## event_time::-16:ever_treated	-0.006200	0.006033	-1.02777	0.30684186752	
## event_time::-15:ever_treated	-0.007867	0.005181	-1.51860	0.13240754091	
## event_time::-14:ever_treated	-0.005949	0.005375	-1.10679	0.27136775617	
## event_time::-13:ever_treated	-0.000972	0.006284	-0.15471	0.87740168349	
## event_time::-12:ever_treated	-0.000016	0.004828	-0.00332	0.99735845469	
## event_time::-11:ever_treated	0.001810	0.005605	0.32292	0.74751055386	
## event_time::-10:ever_treated	0.001658	0.004991	0.33209	0.74059935855	
## event_time::-9:ever_treated	-0.000643	0.004695	-0.13693	0.89139738631	
## event_time::-8:ever_treated	-0.000060	0.004766	-0.01250	0.99005751883	
## event_time::-7:ever_treated	-0.007967	0.004816	-1.65418	0.10161440094	
## event_time::-6:ever_treated	-0.005720	0.003685	-1.55233	0.12413186369	
## event_time::-5:ever_treated	-0.010303	0.011494	-0.89636	0.37248098730	
## event_time::3:ever_treated	-0.025038	0.006114	-4.09503	0.00009275753	***
## event_time::4:ever_treated	-0.027911	0.005801	-4.81174	0.00000606975	***
## event_time::5:ever_treated	-0.022801	0.007593	-3.00309	0.00346933379	**
## event_time::6:ever_treated	-0.024647	0.007774	-3.17036	0.00208841664	**
## event_time::7:ever_treated	-0.024762	0.011283	-2.19466	0.03079117031	*
## event_time::8:ever_treated	-0.033176	0.006152	-5.39244	0.00000056628	***
## event_time::9:ever_treated	-0.027548	0.006666	-4.13283	0.00008083886	***
## event_time::10:ever_treated	-0.029476	0.006495	-4.53841	0.00001766696	***
## event_time::11:ever_treated	-0.026155	0.007738	-3.38026	0.00107696434	**
## event_time::12:ever_treated	-0.023672	0.007294	-3.24548	0.00165298019	**
## event_time::13:ever_treated	-0.028870	0.007386	-3.90889	0.00018058719	***
## event_time::14:ever_treated	-0.039407	0.009647	-4.08502	0.00009618698	***
## event_time::15:ever_treated	-0.028161	0.007083	-3.97570	0.00014248369	***
## event_time::16:ever_treated	-0.030041	0.006913	-4.34538	0.00003680124	***
## event_time::17:ever_treated	-0.032685	0.006849	-4.77233	0.00000709514	***
## event_time::18:ever_treated	-0.029290	0.007692	-3.80810	0.00025700464	***

```

## event_time::19:ever_treated -0.031337 0.007434 -4.21534 0.00005972027 ***
## event_time::20:ever_treated -0.034067 0.007628 -4.46617 0.00002329910 ***
## event_time::21:ever_treated -0.032921 0.007120 -4.62398 0.00001268999 ***
## event_time::22:ever_treated -0.035726 0.008309 -4.29952 0.00004369555 ***
## event_time::23:ever_treated -0.029710 0.007758 -3.82932 0.00023871712 ***
## event_time::24:ever_treated -0.033135 0.007358 -4.50350 0.00002020061 ***
## government -0.004467 0.008611 -0.51875 0.60522375845
## non_profit 0.014272 0.012479 1.14370 0.25581682633
## chain 0.000408 0.004805 0.08483 0.93258365259
## beds -0.000762 0.000170 -4.48223 0.00002191345 ***
## occupancy_rate -0.002549 0.000213 -11.94286 < 2.2e-16 ***
## pct_medicare 0.001251 0.000760 1.64587 0.10331784549
## pct_medicaid -0.000013 0.000102 -0.12466 0.90107699678
## cm_q_state_2 -0.004895 0.003164 -1.54721 0.12536050020
## cm_q_state_3 -0.005536 0.006942 -0.79750 0.42728114658
## cm_q_state_4 -0.010806 0.020308 -0.53209 0.59598697625
## ---
## Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 2.24211 Adj. R2: 0.024602
## Within R2: 9.705e-5

## OLS estimation, Dep. Var.: lpn_hppd
## Observations: 629,587
## Fixed-effects: cms_certification_number: 7,813, year_month: 90
## Standard-errors: Clustered (cms_certification_number & year_month)
## Estimate Std. Error t value Pr(>|t|)
## event_time::-24:ever_treated -0.004891 0.009919 -0.49303 0.623204640
## event_time::-23:ever_treated 0.013520 0.009216 1.46701 0.145897386
## event_time::-22:ever_treated 0.014685 0.009602 1.52932 0.129731151
## event_time::-21:ever_treated 0.011748 0.009355 1.25584 0.212460925
## event_time::-20:ever_treated 0.014202 0.009909 1.43320 0.155304728
## event_time::-19:ever_treated 0.015937 0.009402 1.69514 0.093545821 .
## event_time::-18:ever_treated 0.022435 0.010017 2.23975 0.027598117 *
## event_time::-17:ever_treated 0.025457 0.010212 2.49288 0.014521268 *
## event_time::-16:ever_treated 0.017290 0.010379 1.66585 0.099259533 .
## event_time::-15:ever_treated 0.018306 0.009370 1.95375 0.053870986 .
## event_time::-14:ever_treated 0.024202 0.010379 2.33181 0.021968248 *
## event_time::-13:ever_treated 0.025803 0.010316 2.50129 0.014203678 *
## event_time::-12:ever_treated 0.026536 0.010713 2.47707 0.015136139 *
## event_time::-11:ever_treated 0.021360 0.009444 2.26171 0.026151223 *
## event_time::-10:ever_treated 0.015603 0.010243 1.52325 0.131242449
## event_time::-9:ever_treated 0.006775 0.008654 0.78288 0.435773206
## event_time::-8:ever_treated 0.009127 0.008360 1.09177 0.277881680
## event_time::-7:ever_treated 0.002190 0.008871 0.24685 0.805593585
## event_time::-6:ever_treated 0.007304 0.009507 0.76831 0.444337157
## event_time::-5:ever_treated 0.001657 0.009357 0.17712 0.859816724
## event_time::3:ever_treated 0.006879 0.011312 0.60813 0.544648708
## event_time::4:ever_treated 0.002225 0.013060 0.17034 0.865126110

```



```

## event_time::5:ever_treated    -0.002687    0.009819   -0.27367  0.784971058
## event_time::6:ever_treated     0.004305    0.013986    0.30779  0.758963452
## event_time::7:ever_treated     0.006840    0.013321    0.51348  0.608885246
## event_time::8:ever_treated    -0.006253    0.010466   -0.59742  0.551744533
## event_time::9:ever_treated     0.000315    0.010097    0.03121  0.975170198
## event_time::10:ever_treated    0.003000    0.010462    0.28673  0.774988577
## event_time::11:ever_treated   -0.002388    0.011490   -0.20785  0.835820087
## event_time::12:ever_treated    0.001945    0.011766    0.16534  0.869050535
## event_time::13:ever_treated   -0.005116    0.010505   -0.48701  0.627446816
## event_time::14:ever_treated   -0.007958    0.010035   -0.79297  0.429903962
## event_time::15:ever_treated   -0.001539    0.009550   -0.16117  0.872328851
## event_time::16:ever_treated    0.008286    0.010998    0.75343  0.453178882
## event_time::17:ever_treated    0.008741    0.010937    0.79921  0.426294260
## event_time::18:ever_treated    0.009057    0.010567    0.85715  0.393662397
## event_time::19:ever_treated    0.001904    0.011022    0.17278  0.863215805
## event_time::20:ever_treated   -0.000019    0.010897   -0.00176  0.998600507
## event_time::21:ever_treated    0.004886    0.010470    0.46669  0.641861670
## event_time::22:ever_treated    0.002350    0.010002    0.23501  0.814743000
## event_time::23:ever_treated    0.001348    0.010795    0.12490  0.900883475
## event_time::24:ever_treated    0.013011    0.010350    1.25704  0.212028235
## government                    -0.016396    0.009717   -1.68740  0.095028148 .
## non_profit                    0.004051    0.013265    0.30542  0.760761781
## chain                        -0.016658    0.005967   -2.79175  0.006415359 **
## beds                        -0.000115    0.000141   -0.81283  0.418485820
## occupancy_rate               -0.003315    0.000203  -16.29301 < 2.2e-16 ***
## pct_medicare                 0.001306    0.000298    4.37806  0.000032542 ***
## pct_medicaid               -0.000200    0.000116   -1.72617  0.087787364 .
## cm_q_state_2                 -0.000038    0.002207   -0.01719  0.986325058
## cm_q_state_3                 0.003648    0.002714    1.34419  0.182302431
## cm_q_state_4                 0.015019    0.003430    4.37885  0.000032446 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 0.323705      Adj. R2: 0.42935
##                      Within R2: 0.007073

## OLS estimation, Dep. Var.: cna_hppd
## Observations: 629,587
## Fixed-effects: cms_certification_number: 7,813, year_month: 90
## Standard-errors: Clustered (cms_certification_number & year_month)
##
##              Estimate Std. Error   t value    Pr(>|t|)
## event_time::-24:ever_treated  0.018274    0.015212    1.2013  0.2328260819
## event_time::-23:ever_treated  0.014943    0.017823    0.8384  0.4040515822
## event_time::-22:ever_treated  0.015166    0.017027    0.8907  0.3754804150
## event_time::-21:ever_treated  0.012886    0.016978    0.7590  0.4498420005
## event_time::-20:ever_treated  0.024302    0.016027    1.5163  0.1329800048
## event_time::-19:ever_treated  0.018815    0.016248    1.1580  0.2499561520
## event_time::-18:ever_treated  0.016856    0.016761    1.0057  0.3172901428
## event_time::-17:ever_treated  0.021993    0.014420    1.5252  0.1307653997

```

```

## event_time::-16:ever_treated 0.002521 0.016352 0.1542 0.8778157046
## event_time::-15:ever_treated 0.012735 0.014849 0.8576 0.3934227098
## event_time::-14:ever_treated 0.010702 0.015740 0.6799 0.4983331306
## event_time::-13:ever_treated 0.022586 0.013808 1.6357 0.1054374364
## event_time::-12:ever_treated 0.019804 0.013923 1.4224 0.1583937127
## event_time::-11:ever_treated 0.015550 0.015628 0.9950 0.3224201028
## event_time::-10:ever_treated 0.013117 0.016503 0.7948 0.4288328482
## event_time::-9:ever_treated 0.004773 0.015593 0.3061 0.7602452131
## event_time::-8:ever_treated 0.012559 0.014740 0.8520 0.3964835797
## event_time::-7:ever_treated -0.000443 0.015184 -0.0292 0.9767778875
## event_time::-6:ever_treated 0.009277 0.013074 0.7096 0.4798265974
## event_time::-5:ever_treated 0.005434 0.014575 0.3728 0.7101531266
## event_time::3:ever_treated -0.034195 0.016865 -2.0276 0.0455889987 *
## event_time::4:ever_treated -0.035112 0.014901 -2.3563 0.0206526089 *
## event_time::5:ever_treated -0.023376 0.018237 -1.2817 0.2032616148
## event_time::6:ever_treated -0.023295 0.018657 -1.2486 0.2150963374
## event_time::7:ever_treated -0.023346 0.026016 -0.8974 0.3719462842
## event_time::8:ever_treated -0.056135 0.017532 -3.2018 0.0018945520 **
## event_time::9:ever_treated -0.045814 0.015509 -2.9541 0.0040117303 **
## event_time::10:ever_treated -0.049087 0.018603 -2.6388 0.0098228715 **
## event_time::11:ever_treated -0.053048 0.019220 -2.7601 0.0070161031 **
## event_time::12:ever_treated -0.041664 0.019578 -2.1281 0.0360967973 *
## event_time::13:ever_treated -0.046811 0.021012 -2.2278 0.0284134406 *
## event_time::14:ever_treated -0.058634 0.018856 -3.1095 0.0025171911 **
## event_time::15:ever_treated -0.054836 0.018747 -2.9251 0.0043678779 **
## event_time::16:ever_treated -0.038139 0.018703 -2.0392 0.0443943431 *
## event_time::17:ever_treated -0.038570 0.016447 -2.3452 0.0212423769 *
## event_time::18:ever_treated -0.025541 0.017201 -1.4848 0.1411275505
## event_time::19:ever_treated -0.037083 0.016827 -2.2037 0.0301235943 *
## event_time::20:ever_treated -0.049505 0.018083 -2.7377 0.0074721204 **
## event_time::21:ever_treated -0.047176 0.016080 -2.9339 0.0042573775 **
## event_time::22:ever_treated -0.051397 0.017552 -2.9284 0.0043265293 **
## event_time::23:ever_treated -0.052221 0.018677 -2.7960 0.0063380767 **
## event_time::24:ever_treated -0.032978 0.016049 -2.0548 0.0428271953 *
## government -0.029142 0.016245 -1.7939 0.0762292447 .
## non_profit 0.041532 0.021883 1.8979 0.0609525759 .
## chain -0.043799 0.009200 -4.7607 0.0000074289 ***
## beds -0.000833 0.000256 -3.2566 0.0015960752 **
## occupancy_rate -0.004002 0.000331 -12.1011 < 2.2e-16 ***
## pct_medicare 0.001003 0.000492 2.0377 0.0445458944 *
## pct_medicaid -0.000688 0.000181 -3.8009 0.0002635031 ***
## cm_q_state_2 0.005948 0.004374 1.3599 0.1773063847
## cm_q_state_3 0.024038 0.005830 4.1235 0.0000836323 ***
## cm_q_state_4 0.036688 0.007824 4.6893 0.0000098347 ***
## ---
## Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 0.937417 Adj. R2: 0.208592
## Within R2: 0.001487

```

```

## OLS estimation, Dep. Var.: total_hppd
## Observations: 629,587
## Fixed-effects: cms_certification_number: 7,813, year_month: 90
## Standard-errors: Clustered (cms_certification_number & year_month)
##
## Estimate Std. Error t value Pr(>|t|)
## event_time::-24:ever_treated 0.022451 0.024155 0.929 0.355169555
## event_time::-23:ever_treated 0.026674 0.027297 0.977 0.331136170
## event_time::-22:ever_treated 0.026520 0.026130 1.015 0.312898008
## event_time::-21:ever_treated 0.020130 0.024872 0.809 0.420482673
## event_time::-20:ever_treated 0.040934 0.024465 1.673 0.097799860 .
## event_time::-19:ever_treated 0.027276 0.024547 1.111 0.269500593
## event_time::-18:ever_treated 0.030294 0.025424 1.192 0.236594841
## event_time::-17:ever_treated 0.040283 0.023586 1.708 0.091138768 .
## event_time::-16:ever_treated 0.013611 0.025808 0.527 0.599230326
## event_time::-15:ever_treated 0.023174 0.022399 1.035 0.303663372
## event_time::-14:ever_treated 0.028955 0.024673 1.174 0.243715042
## event_time::-13:ever_treated 0.047416 0.023410 2.025 0.045818052 *
## event_time::-12:ever_treated 0.046324 0.023016 2.013 0.047166407 *
## event_time::-11:ever_treated 0.038720 0.025360 1.527 0.130348187
## event_time::-10:ever_treated 0.030377 0.026173 1.161 0.248905382
## event_time::-9:ever_treated 0.010905 0.023619 0.462 0.645426822
## event_time::-8:ever_treated 0.021626 0.022408 0.965 0.337109653
## event_time::-7:ever_treated -0.006220 0.023623 -0.263 0.792917064
## event_time::-6:ever_treated 0.010861 0.021997 0.494 0.622695924
## event_time::-5:ever_treated -0.003211 0.030725 -0.105 0.916996289
## event_time::3:ever_treated -0.052354 0.027481 -1.905 0.059993739 .
## event_time::4:ever_treated -0.060798 0.026683 -2.279 0.025087009 *
## event_time::5:ever_treated -0.048864 0.028065 -1.741 0.085123891 .
## event_time::6:ever_treated -0.043637 0.031563 -1.383 0.170271557
## event_time::7:ever_treated -0.041269 0.045466 -0.908 0.366495902
## event_time::8:ever_treated -0.095563 0.027489 -3.476 0.000787948 ***
## event_time::9:ever_treated -0.073047 0.023920 -3.054 0.002979917 **
## event_time::10:ever_treated -0.075564 0.028350 -2.665 0.009131266 **
## event_time::11:ever_treated -0.081591 0.030553 -2.671 0.009003569 **
## event_time::12:ever_treated -0.063390 0.030754 -2.061 0.042200505 *
## event_time::13:ever_treated -0.080797 0.031173 -2.592 0.011154343 *
## event_time::14:ever_treated -0.105998 0.028280 -3.748 0.000316102 ***
## event_time::15:ever_treated -0.084536 0.027461 -3.078 0.002766519 **
## event_time::16:ever_treated -0.059894 0.029775 -2.012 0.047295178 *
## event_time::17:ever_treated -0.062514 0.025478 -2.454 0.016091613 *
## event_time::18:ever_treated -0.045774 0.027481 -1.666 0.099297675 .
## event_time::19:ever_treated -0.066516 0.026396 -2.520 0.013522546 *
## event_time::20:ever_treated -0.083591 0.028261 -2.958 0.003967448 **
## event_time::21:ever_treated -0.075211 0.024927 -3.017 0.003326250 **
## event_time::22:ever_treated -0.084773 0.026359 -3.216 0.001811803 **
## event_time::23:ever_treated -0.080583 0.027346 -2.947 0.004098461 **
## event_time::24:ever_treated -0.053102 0.024812 -2.140 0.035075107 *
## government -0.050005 0.020301 -2.463 0.015693013 *

```

```

## non_profit          0.059856    0.031746    1.885 0.062634762 .
## chain              -0.060049    0.013145   -4.568 0.000015743 ***
## beds              -0.001710    0.000432   -3.955 0.000153191 ***
## occupancy_rate     -0.009866    0.000571  -17.290 < 2.2e-16 ***
## pct_medicare        0.003560    0.001099    3.238 0.001689873 **
## pct_medicaid       -0.000901    0.000297   -3.033 0.003177334 **
## cm_q_state_2        0.001015    0.007216    0.141 0.888462037
## cm_q_state_3        0.022150    0.011434    1.937 0.055891366 .
## cm_q_state_4        0.040901    0.024490    1.670 0.098409688 .
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 2.59258      Adj. R2: 0.080285
##                   Within R2: 0.001017

```

## Excluding Anticipation (Logs)

```

## OLS estimation, Dep. Var.: ln_rn
## Observations: 623,012
## Fixed-effects: cms_certification_number: 7,810, year_month: 90
## Standard-errors: Clustered (cms_certification_number & year_month)
##
##              Estimate Std. Error  t value      Pr(>|t|)
## event_time::-24:ever_treated  0.027745    0.022316    1.2433 0.217029153113
## event_time::-23:ever_treated  0.001251    0.027646    0.0453 0.964002508531
## event_time::-22:ever_treated -0.007358    0.025075   -0.2934 0.769861066286
## event_time::-21:ever_treated -0.003824    0.025115   -0.1523 0.879328420340
## event_time::-20:ever_treated  0.014309    0.025160    0.5687 0.570978013503
## event_time::-19:ever_treated -0.009673    0.023111   -0.4185 0.676560811494
## event_time::-18:ever_treated -0.016173    0.023902   -0.6766 0.500400326493
## event_time::-17:ever_treated -0.012689    0.022663   -0.5599 0.576953452244
## event_time::-16:ever_treated -0.007494    0.020797   -0.3603 0.719465904344
## event_time::-15:ever_treated -0.005327    0.023527   -0.2264 0.821400712762
## event_time::-14:ever_treated -0.010946    0.024062   -0.4549 0.650292248808
## event_time::-13:ever_treated  0.011337    0.024060    0.4712 0.638654414431
## event_time::-12:ever_treated  0.017805    0.016936    1.0513 0.295959868737
## event_time::-11:ever_treated  0.016122    0.023317    0.6914 0.491089275275
## event_time::-10:ever_treated  0.007608    0.019967    0.3810 0.704104081469
## event_time::-9:ever_treated   -0.006386    0.017049   -0.3746 0.708864192642
## event_time::-8:ever_treated   0.003797    0.021651    0.1754 0.861172336349
## event_time::-7:ever_treated   -0.003514    0.017747   -0.1980 0.843503083345
## event_time::-6:ever_treated   -0.000588    0.017354   -0.0339 0.973040354247
## event_time::-5:ever_treated   0.002856    0.019298    0.1480 0.882677610878
## event_time::3:ever_treated    -0.077296    0.027553   -2.8054 0.006172063908 **
## event_time::4:ever_treated    -0.080876    0.025302   -3.1965 0.001926185896 **
## event_time::5:ever_treated    -0.072304    0.028400   -2.5459 0.012619303871 *
## event_time::6:ever_treated    -0.073239    0.032134   -2.2792 0.025048622226 *
## event_time::7:ever_treated    -0.075419    0.043315   -1.7412 0.085107010202 .
## event_time::8:ever_treated    -0.097173    0.025269   -3.8456 0.000225514017 ***
## event_time::9:ever_treated    -0.077842    0.026799   -2.9047 0.004636567969 **

```

```

## event_time::10:ever_treated -0.073922 0.025390 -2.9115 0.004544844315 **
## event_time::11:ever_treated -0.078879 0.027976 -2.8195 0.005927677092 **
## event_time::12:ever_treated -0.090275 0.027999 -3.2243 0.001766448143 **
## event_time::13:ever_treated -0.090318 0.026866 -3.3618 0.001142731639 **
## event_time::14:ever_treated -0.091652 0.027666 -3.3128 0.001336348461 **
## event_time::15:ever_treated -0.078464 0.025966 -3.0217 0.003281548847 **
## event_time::16:ever_treated -0.068246 0.025572 -2.6687 0.009047848515 **
## event_time::17:ever_treated -0.070694 0.027054 -2.6131 0.010533914868 *
## event_time::18:ever_treated -0.072858 0.026134 -2.7879 0.006486543641 **
## event_time::19:ever_treated -0.070784 0.025931 -2.7297 0.007640288939 **
## event_time::20:ever_treated -0.070898 0.026907 -2.6349 0.009927072591 **
## event_time::21:ever_treated -0.082326 0.027643 -2.9782 0.003735603254 **
## event_time::22:ever_treated -0.073089 0.029252 -2.4986 0.014303418435 *
## event_time::23:ever_treated -0.079196 0.029461 -2.6882 0.008575034480 **
## event_time::24:ever_treated -0.089405 0.024506 -3.6483 0.000444503270 ***
## government -0.000369 0.030322 -0.0122 0.990305976441
## non_profit 0.062312 0.029926 2.0822 0.040194105572 *
## chain 0.011800 0.013520 0.8728 0.385131645206
## beds -0.000692 0.000249 -2.7724 0.006775690938 **
## occupancy_rate -0.003851 0.000325 -11.8515 < 2.2e-16 ***
## pct_medicare 0.003685 0.000549 6.7149 0.000000001708 ***
## pct_medicaid 0.000150 0.000243 0.6164 0.539209936350
## cm_q_state_2 0.009570 0.004962 1.9285 0.056979557836 .
## cm_q_state_3 0.022294 0.006265 3.5583 0.000601141046 ***
## cm_q_state_4 0.040450 0.007602 5.3210 0.000000763411 ***
## ---
## Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 0.446832 Adj. R2: 0.688268
## Within R2: 0.008521

## OLS estimation, Dep. Var.: ln_lpn
## Observations: 623,851
## Fixed-effects: cms_certification_number: 7,796, year_month: 90
## Standard-errors: Clustered (cms_certification_number & year_month)
## Estimate Std. Error t value Pr(>|t|)
## event_time::-24:ever_treated -0.002532 0.011367 -0.223 0.82422260907144
## event_time::-23:ever_treated 0.010069 0.011404 0.883 0.37963234091085
## event_time::-22:ever_treated 0.010593 0.012531 0.845 0.40021581510030
## event_time::-21:ever_treated 0.002207 0.012786 0.173 0.86335850662428
## event_time::-20:ever_treated 0.013260 0.012651 1.048 0.29743473101311
## event_time::-19:ever_treated 0.013833 0.011463 1.207 0.23071909480634
## event_time::-18:ever_treated 0.023479 0.011107 2.114 0.03733222096875 *
## event_time::-17:ever_treated 0.026599 0.011169 2.381 0.01937638006646 *
## event_time::-16:ever_treated 0.019535 0.012325 1.585 0.11651420849328
## event_time::-15:ever_treated 0.023579 0.010576 2.229 0.02829756808971 *
## event_time::-14:ever_treated 0.026884 0.010923 2.461 0.01577080528831 *
## event_time::-13:ever_treated 0.034446 0.011224 3.069 0.00284552780418 **
## event_time::-12:ever_treated 0.032252 0.010397 3.102 0.00257625171564 **

```

```

## event_time::-11:ever_treated  0.020152    0.009809    2.054 0.04286537338538 *
## event_time::-10:ever_treated  0.018436    0.011663    1.581 0.11749739969707
## event_time::-9:ever_treated   0.009548    0.007883    1.211 0.22904232912789
## event_time::-8:ever_treated   0.007198    0.009431    0.763 0.44733646667059
## event_time::-7:ever_treated  -0.003159    0.009168   -0.345 0.73125681706374
## event_time::-6:ever_treated   0.001365    0.011056    0.123 0.90204447027103
## event_time::-5:ever_treated   0.001418    0.008509    0.167 0.86804285619380
## event_time::3:ever_treated   -0.005157    0.012542   -0.411 0.68193369974838
## event_time::4:ever_treated   -0.009536    0.014102   -0.676 0.50066806225384
## event_time::5:ever_treated   -0.014427    0.011775   -1.225 0.22369220991102
## event_time::6:ever_treated   -0.006464    0.011475   -0.563 0.57465078716434
## event_time::7:ever_treated    0.013946    0.013914    1.002 0.31893649662836
## event_time::8:ever_treated    0.003193    0.011566    0.276 0.78311139972628
## event_time::9:ever_treated    0.010074    0.012955    0.778 0.43886646397101
## event_time::10:ever_treated   0.013381    0.012724    1.052 0.29581232156295
## event_time::11:ever_treated   0.008164    0.013665    0.597 0.55175145524451
## event_time::12:ever_treated   0.013952    0.013570    1.028 0.30667946267872
## event_time::13:ever_treated   0.012001    0.014121    0.850 0.39768896048137
## event_time::14:ever_treated   0.002090    0.013990    0.149 0.88160521834020
## event_time::15:ever_treated   0.006462    0.013566    0.476 0.63497801618471
## event_time::16:ever_treated   0.023365    0.013538    1.726 0.08785177146658 .
## event_time::17:ever_treated   0.023474    0.013361    1.757 0.08236837915462 .
## event_time::18:ever_treated   0.015844    0.014248    1.112 0.26913282467668
## event_time::19:ever_treated   0.010678    0.014473    0.738 0.46257879589262
## event_time::20:ever_treated   0.008066    0.014269    0.565 0.57332673580734
## event_time::21:ever_treated   0.010521    0.014405    0.730 0.46708424645468
## event_time::22:ever_treated   0.010449    0.014104    0.741 0.46073584568786
## event_time::23:ever_treated   0.007984    0.014337    0.557 0.57901996265906
## event_time::24:ever_treated   0.015257    0.013406    1.138 0.25814898715404
## government                    -0.019489    0.015800   -1.233 0.22065853749768
## non_profit                    -0.012842    0.025323   -0.507 0.61331552888099
## chain                        -0.009978    0.008114   -1.230 0.22201802615167
## beds                         0.000325    0.000293    1.111 0.26976920346649
## occupancy_rate               -0.003419    0.000279  -12.259 < 2.2e-16 ***
## pct_medicare                 0.001051    0.000420    2.505 0.01406087039278 *
## pct_medicaid                -0.000456    0.000192   -2.377 0.01960112372897 *
## cm_q_state_2                 0.009131    0.003163    2.887 0.00488213692939 **
## cm_q_state_3                 0.016443    0.003770    4.361 0.00003465492183 ***
## cm_q_state_4                 0.030933    0.004499    6.876 0.00000000081786 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 0.283756      Adj. R2: 0.660013
##                      Within R2: 0.010333

## OLS estimation, Dep. Var.: ln_cna
## Observations: 628,674
## Fixed-effects: cms_certification_number: 7,810, year_month: 90
## Standard-errors: Clustered (cms_certification_number & year_month)

```

##	Estimate	Std. Error	t value	Pr(> t )
## event_time::-24:ever_treated	0.009423	0.009191	1.025	0.3079947331771688557
## event_time::-23:ever_treated	0.013879	0.010431	1.331	0.1867071829469667266
## event_time::-22:ever_treated	0.011010	0.009699	1.135	0.2593706680123119002
## event_time::-21:ever_treated	0.008084	0.008891	0.909	0.3656742239312317233
## event_time::-20:ever_treated	0.014559	0.009792	1.487	0.1406095593804217447
## event_time::-19:ever_treated	0.011005	0.009967	1.104	0.2724706971006092826
## event_time::-18:ever_treated	0.013559	0.010131	1.338	0.1842037584746822332
## event_time::-17:ever_treated	0.015166	0.008852	1.713	0.0901415248673681363
## event_time::-16:ever_treated	0.004270	0.010730	0.398	0.6916261061421278278
## event_time::-15:ever_treated	0.012273	0.008426	1.456	0.1487783137871981076
## event_time::-14:ever_treated	0.008888	0.009572	0.929	0.3556358182340634277
## event_time::-13:ever_treated	0.015574	0.008342	1.867	0.0652070150393264103
## event_time::-12:ever_treated	0.015510	0.008737	1.775	0.0792987120244062621
## event_time::-11:ever_treated	0.012628	0.008195	1.541	0.1268804646296594341
## event_time::-10:ever_treated	0.011061	0.009555	1.158	0.2501060774902124084
## event_time::-9:ever_treated	0.008684	0.008597	1.010	0.3151879465710810679
## event_time::-8:ever_treated	0.006873	0.009670	0.711	0.4790974485024989127
## event_time::-7:ever_treated	0.003968	0.009647	0.411	0.6818009259143325007
## event_time::-6:ever_treated	0.008046	0.008167	0.985	0.3271907252154768742
## event_time::-5:ever_treated	0.006595	0.009236	0.714	0.4770281826264661795
## event_time::3:ever_treated	-0.016064	0.010639	-1.510	0.1346004260049862844
## event_time::4:ever_treated	-0.017860	0.009746	-1.832	0.0702235818801935502
## event_time::5:ever_treated	-0.005928	0.011140	-0.532	0.5959283547225474598
## event_time::6:ever_treated	-0.007487	0.011356	-0.659	0.5114229954204967399
## event_time::7:ever_treated	-0.004992	0.014863	-0.336	0.7377620317037801856
## event_time::8:ever_treated	-0.022912	0.010642	-2.153	0.0340253039647194430
## event_time::9:ever_treated	-0.018185	0.009854	-1.845	0.0683043459424202554
## event_time::10:ever_treated	-0.021723	0.011553	-1.880	0.0633453734728578050
## event_time::11:ever_treated	-0.022381	0.011970	-1.870	0.0648066632784824320
## event_time::12:ever_treated	-0.018541	0.013413	-1.382	0.1703337665720619787
## event_time::13:ever_treated	-0.018175	0.013779	-1.319	0.1905429676625726432
## event_time::14:ever_treated	-0.021260	0.012161	-1.748	0.0838854188640844323
## event_time::15:ever_treated	-0.021736	0.010941	-1.987	0.0500318295222453718
## event_time::16:ever_treated	-0.012669	0.010526	-1.204	0.2319348454324197117
## event_time::17:ever_treated	-0.010990	0.009871	-1.113	0.2685363637126613190
## event_time::18:ever_treated	-0.006526	0.010568	-0.617	0.5384928150456749218
## event_time::19:ever_treated	-0.009806	0.009886	-0.992	0.3239616549825027336
## event_time::20:ever_treated	-0.017289	0.011086	-1.559	0.1224279040366987453
## event_time::21:ever_treated	-0.019387	0.010610	-1.827	0.0710070248937182125
## event_time::22:ever_treated	-0.017925	0.010748	-1.668	0.0988751008585814772
## event_time::23:ever_treated	-0.020633	0.012428	-1.660	0.1003798286817121216
## event_time::24:ever_treated	-0.019186	0.009934	-1.931	0.0566305452266152656
## government	-0.030906	0.010593	-2.918	0.0044646070599438084
## non_profit	0.018767	0.010460	1.794	0.0761822660463755130
## chain	-0.018501	0.004587	-4.033	0.0001159902218664677
## beds	-0.000308	0.000124	-2.488	0.0147198485146351997
## occupancy_rate	-0.001493	0.000127	-11.769	< 2.2e-16

```

## pct_medicare          0.000221    0.000224    0.989 0.3253295951771981720
## pct_medicaid        -0.000339    0.000088   -3.839 0.0002310660316932182
## cm_q_state_2         0.008866    0.001767    5.019 0.0000026470499342084
## cm_q_state_3         0.020729    0.002282    9.082 0.00000000000000253678
## cm_q_state_4         0.027925    0.002916    9.576 0.0000000000000024159
##
## event_time::-24:ever_treated
## event_time::-23:ever_treated
## event_time::-22:ever_treated
## event_time::-21:ever_treated
## event_time::-20:ever_treated
## event_time::-19:ever_treated
## event_time::-18:ever_treated
## event_time::-17:ever_treated .
## event_time::-16:ever_treated
## event_time::-15:ever_treated
## event_time::-14:ever_treated
## event_time::-13:ever_treated .
## event_time::-12:ever_treated .
## event_time::-11:ever_treated
## event_time::-10:ever_treated
## event_time::-9:ever_treated
## event_time::-8:ever_treated
## event_time::-7:ever_treated
## event_time::-6:ever_treated
## event_time::-5:ever_treated
## event_time::3:ever_treated
## event_time::4:ever_treated .
## event_time::5:ever_treated
## event_time::6:ever_treated
## event_time::7:ever_treated
## event_time::8:ever_treated *
## event_time::9:ever_treated .
## event_time::10:ever_treated .
## event_time::11:ever_treated .
## event_time::12:ever_treated
## event_time::13:ever_treated
## event_time::14:ever_treated .
## event_time::15:ever_treated .
## event_time::16:ever_treated
## event_time::17:ever_treated
## event_time::18:ever_treated
## event_time::19:ever_treated
## event_time::20:ever_treated
## event_time::21:ever_treated .
## event_time::22:ever_treated .
## event_time::23:ever_treated
## event_time::24:ever_treated .

```



```

## government          **
## non_profit         .
## chain              ***
## beds               *
## occupancy_rate     ***
## pct_medicare
## pct_medicaid      ***
## cm_q_state_2       ***
## cm_q_state_3       ***
## cm_q_state_4       ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 0.176792      Adj. R2: 0.62543
##                    Within R2: 0.007641

## OLS estimation, Dep. Var.: ln_total
## Observations: 629,057
## Fixed-effects: cms_certification_number: 7,813, year_month: 90
## Standard-errors: Clustered (cms_certification_number & year_month)
##
##                    Estimate Std. Error  t value      Pr(>|t|)
## event_time::-24:ever_treated  0.001273   0.008866   0.1436 0.886171244156336191
## event_time::-23:ever_treated  0.008472   0.010438   0.8116 0.419169500653485239
## event_time::-22:ever_treated  0.007912   0.009839   0.8042 0.423443400072355924
## event_time::-21:ever_treated  0.005519   0.008686   0.6354 0.526824178929207299
## event_time::-20:ever_treated  0.011084   0.009471   1.1703 0.244999802606005707
## event_time::-19:ever_treated  0.007545   0.009588   0.7869 0.433435818337501444
## event_time::-18:ever_treated  0.012270   0.009433   1.3008 0.196686044571259044
## event_time::-17:ever_treated  0.011152   0.009024   1.2358 0.219769936704401536
## event_time::-16:ever_treated -0.001333   0.011178  -0.1193 0.905320025667388784
## event_time::-15:ever_treated  0.008321   0.008354   0.9960 0.321955666043351518
## event_time::-14:ever_treated  0.007633   0.009382   0.8136 0.418066964521561668
## event_time::-13:ever_treated  0.016210   0.008758   1.8509 0.067507140309214286
## event_time::-12:ever_treated  0.017446   0.008932   1.9532 0.053938390733458179
## event_time::-11:ever_treated  0.013223   0.008002   1.6524 0.101968774318615840
## event_time::-10:ever_treated  0.011472   0.009612   1.1935 0.235848285140823816
## event_time::-9:ever_treated  -0.000395   0.011912  -0.0332 0.973624990117674560
## event_time::-8:ever_treated   0.007465   0.008943   0.8347 0.406134639669827435
## event_time::-7:ever_treated   0.001805   0.009175   0.1967 0.844521694298361769
## event_time::-6:ever_treated   0.007194   0.008342   0.8624 0.390777848884259149
## event_time::-5:ever_treated   0.002993   0.010253   0.2919 0.771061639416659506
## event_time::3:ever_treated    -0.024628   0.011709  -2.1033 0.038263436348859599
## event_time::4:ever_treated    -0.022576   0.010152  -2.2237 0.028696655391965059
## event_time::5:ever_treated    -0.015706   0.010705  -1.4672 0.145859655253258780
## event_time::6:ever_treated    -0.013825   0.010988  -1.2582 0.211601089539344256
## event_time::7:ever_treated    -0.009493   0.014762  -0.6431 0.521840929654675545
## event_time::8:ever_treated    -0.026568   0.010351  -2.5667 0.011937191049312929
## event_time::9:ever_treated    -0.019914   0.009154  -2.1756 0.032237068290203841
## event_time::10:ever_treated  -0.020873   0.010495  -1.9888 0.049793593694944037

```

```

## event_time::11:ever_treated -0.022782 0.010810 -2.1075 0.037885090665594652
## event_time::12:ever_treated -0.020836 0.011633 -1.7912 0.076661144232520753
## event_time::13:ever_treated -0.021320 0.011811 -1.8052 0.074432483557274887
## event_time::14:ever_treated -0.027411 0.010093 -2.7157 0.007944257217078227
## event_time::15:ever_treated -0.024756 0.010547 -2.3471 0.021136503610459368
## event_time::16:ever_treated -0.016878 0.010092 -1.6724 0.097947840208875911
## event_time::17:ever_treated -0.013392 0.009186 -1.4578 0.148408806225491657
## event_time::18:ever_treated -0.011270 0.009988 -1.1283 0.262227995574187467
## event_time::19:ever_treated -0.015491 0.009380 -1.6514 0.102171998297805044
## event_time::20:ever_treated -0.020946 0.010585 -1.9788 0.050926601834881992
## event_time::21:ever_treated -0.023464 0.009813 -2.3910 0.018909556119700431
## event_time::22:ever_treated -0.021922 0.009730 -2.2531 0.026711161698954534
## event_time::23:ever_treated -0.023452 0.011135 -2.1061 0.038007905727830429
## event_time::24:ever_treated -0.020035 0.009319 -2.1499 0.034274312636460857
## government -0.021892 0.007379 -2.9670 0.003861688408804963
## non_profit 0.019936 0.009671 2.0615 0.042170738774547405
## chain -0.013640 0.003944 -3.4582 0.000836261435938193
## beds -0.000382 0.000119 -3.2048 0.001877009755884935
## occupancy_rate -0.002368 0.000141 -16.8085 < 2.2e-16
## pct_medicare 0.000875 0.000204 4.2964 0.000044209082279352
## pct_medicaid -0.000262 0.000087 -3.0174 0.003324048028562149
## cm_q_state_2 0.007753 0.001593 4.8664 0.000004883311379412
## cm_q_state_3 0.018031 0.002026 8.8980 0.0000000000000061099
## cm_q_state_4 0.028035 0.002649 10.5851 < 2.2e-16
##
## event_time::-24:ever_treated
## event_time::-23:ever_treated
## event_time::-22:ever_treated
## event_time::-21:ever_treated
## event_time::-20:ever_treated
## event_time::-19:ever_treated
## event_time::-18:ever_treated
## event_time::-17:ever_treated
## event_time::-16:ever_treated
## event_time::-15:ever_treated
## event_time::-14:ever_treated
## event_time::-13:ever_treated .
## event_time::-12:ever_treated .
## event_time::-11:ever_treated
## event_time::-10:ever_treated
## event_time::-9:ever_treated
## event_time::-8:ever_treated
## event_time::-7:ever_treated
## event_time::-6:ever_treated
## event_time::-5:ever_treated
## event_time::3:ever_treated *
## event_time::4:ever_treated *
## event_time::5:ever_treated

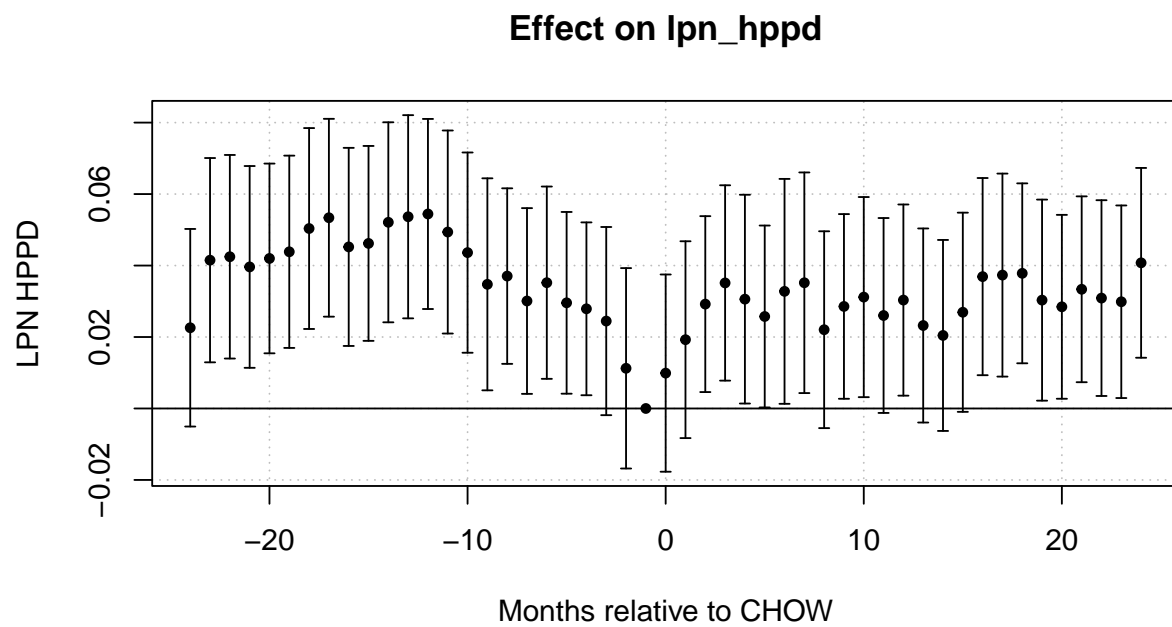
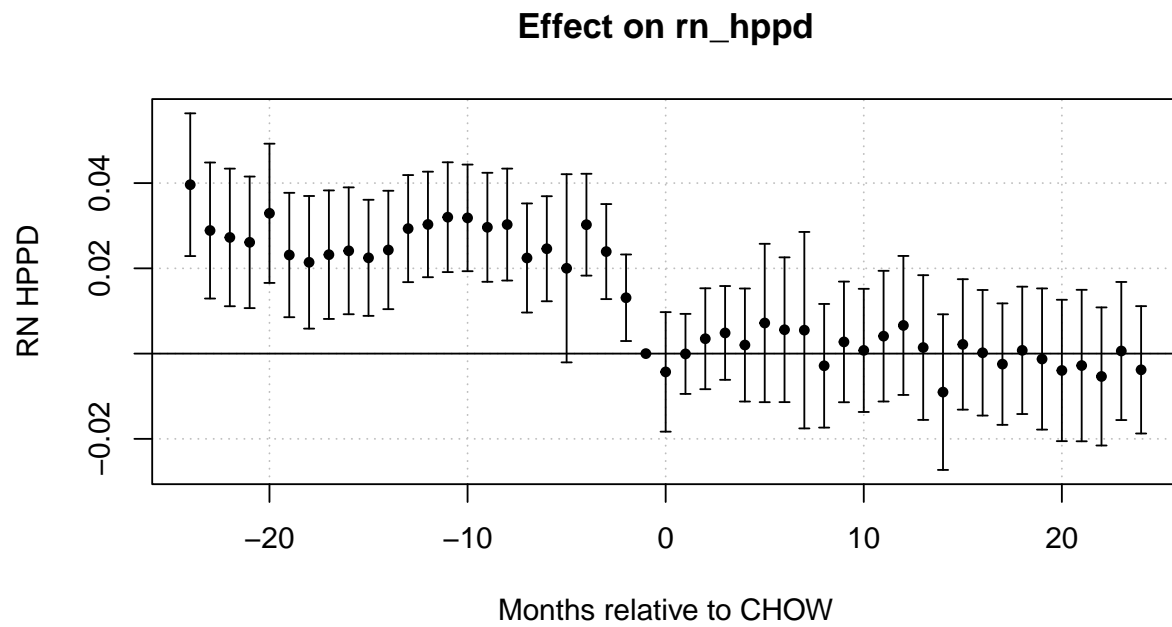
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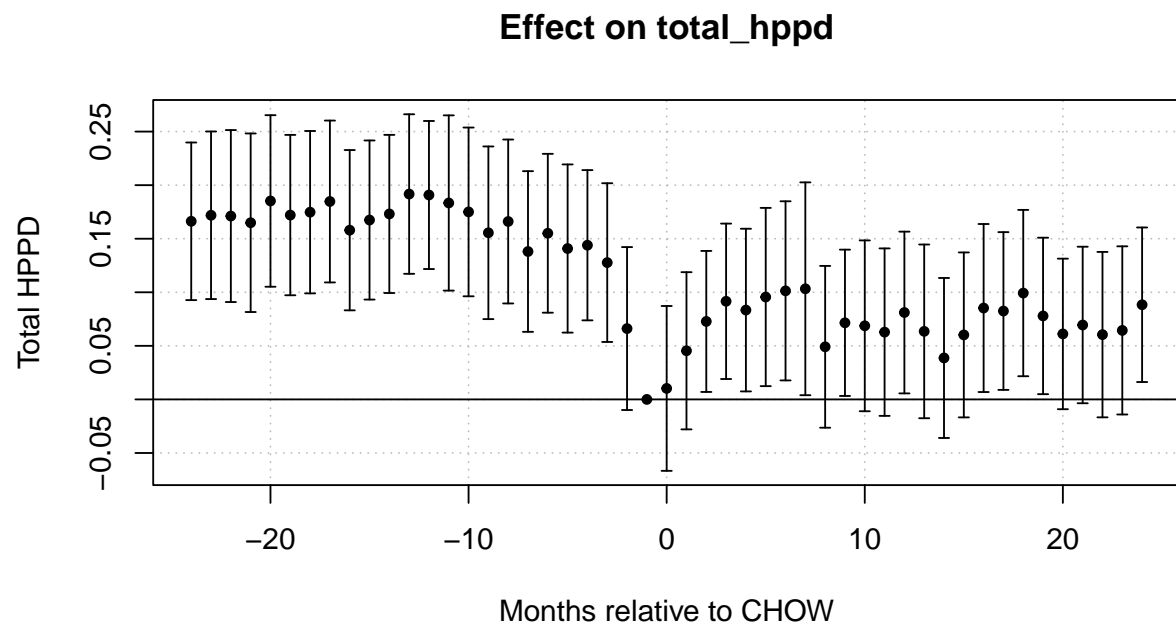
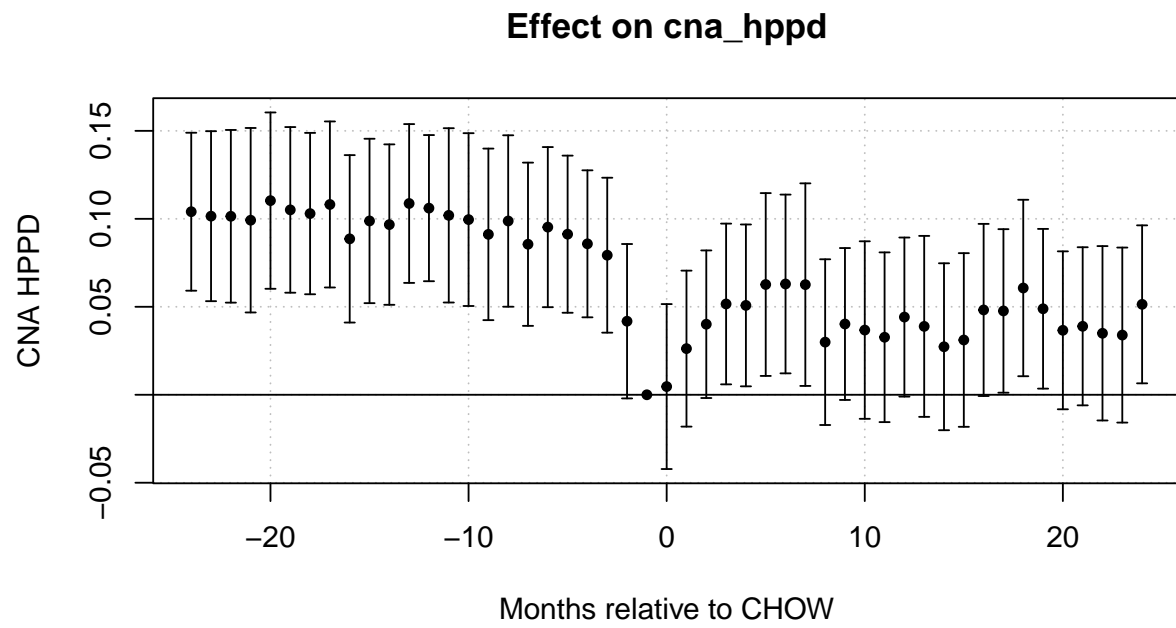
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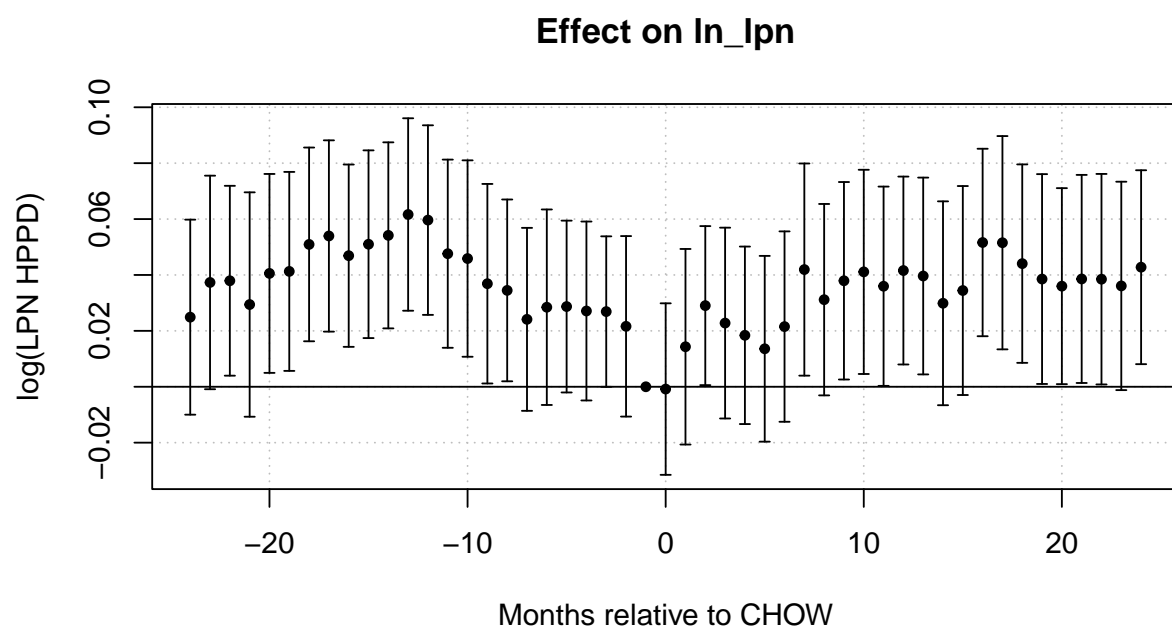
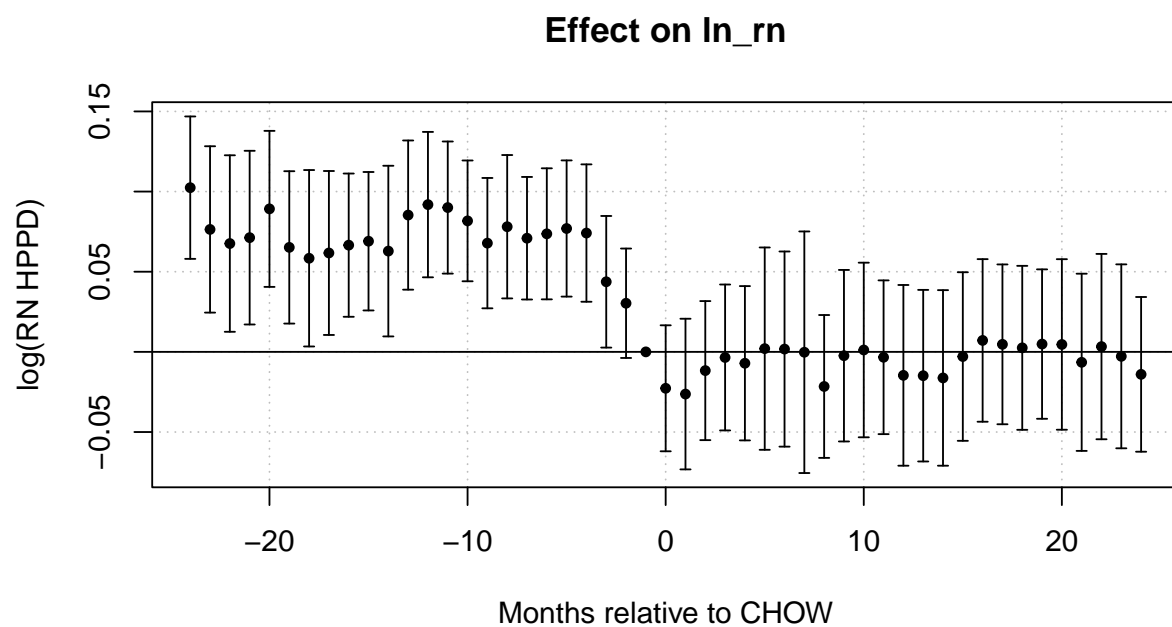
## event_time::6:ever_treated
## event_time::7:ever_treated
## event_time::8:ever_treated *
## event_time::9:ever_treated *
## event_time::10:ever_treated *
## event_time::11:ever_treated *
## event_time::12:ever_treated .
## event_time::13:ever_treated .
## event_time::14:ever_treated **
## event_time::15:ever_treated *
## event_time::16:ever_treated .
## event_time::17:ever_treated
## event_time::18:ever_treated
## event_time::19:ever_treated
## event_time::20:ever_treated .
## event_time::21:ever_treated *
## event_time::22:ever_treated *
## event_time::23:ever_treated *
## event_time::24:ever_treated *
## government **
## non_profit *
## chain ***
## beds **
## occupancy_rate ***
## pct_medicare ***
## pct_medicaid **
## cm_q_state_2 ***
## cm_q_state_3 ***
## cm_q_state_4 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 0.158321      Adj. R2: 0.630817
##                      Within R2: 0.01795

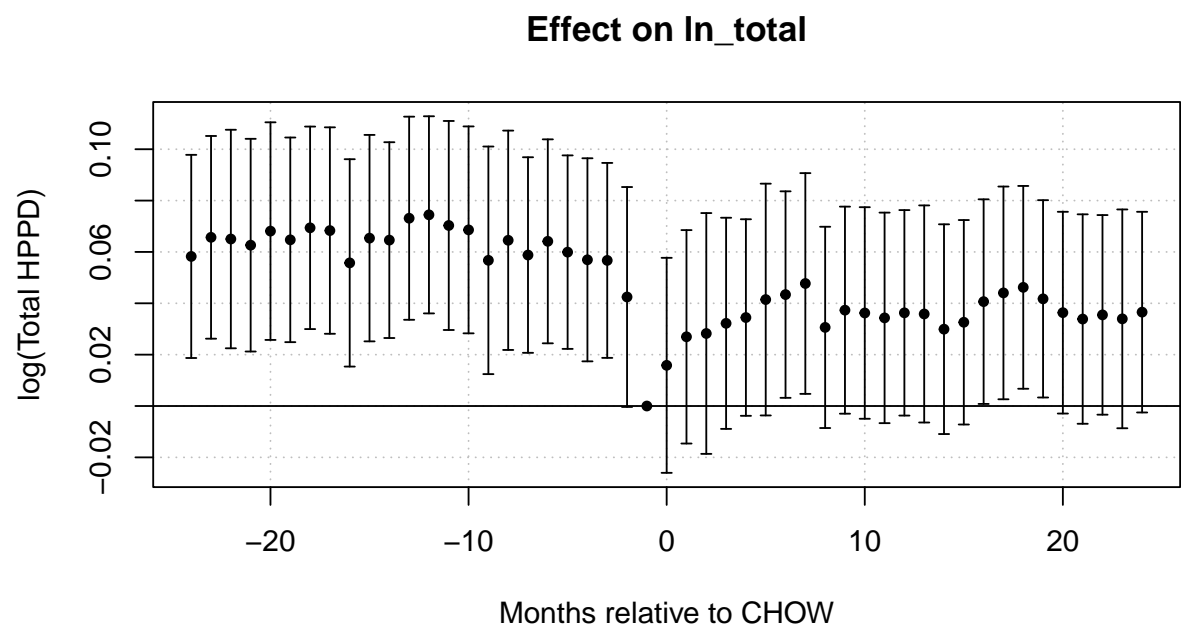
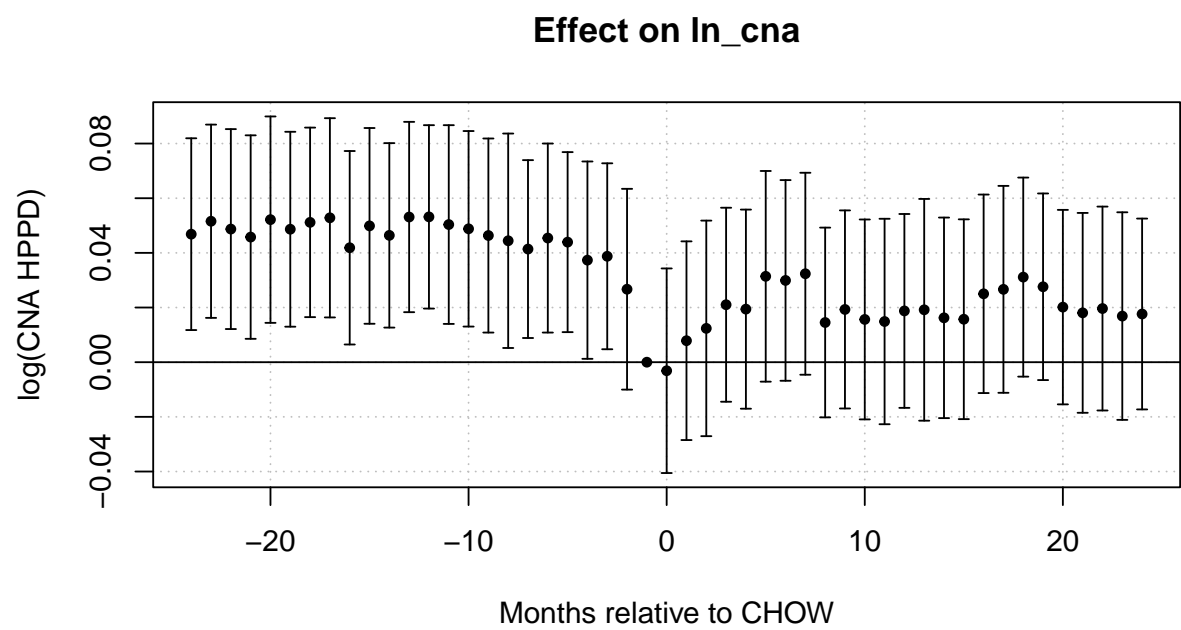
```

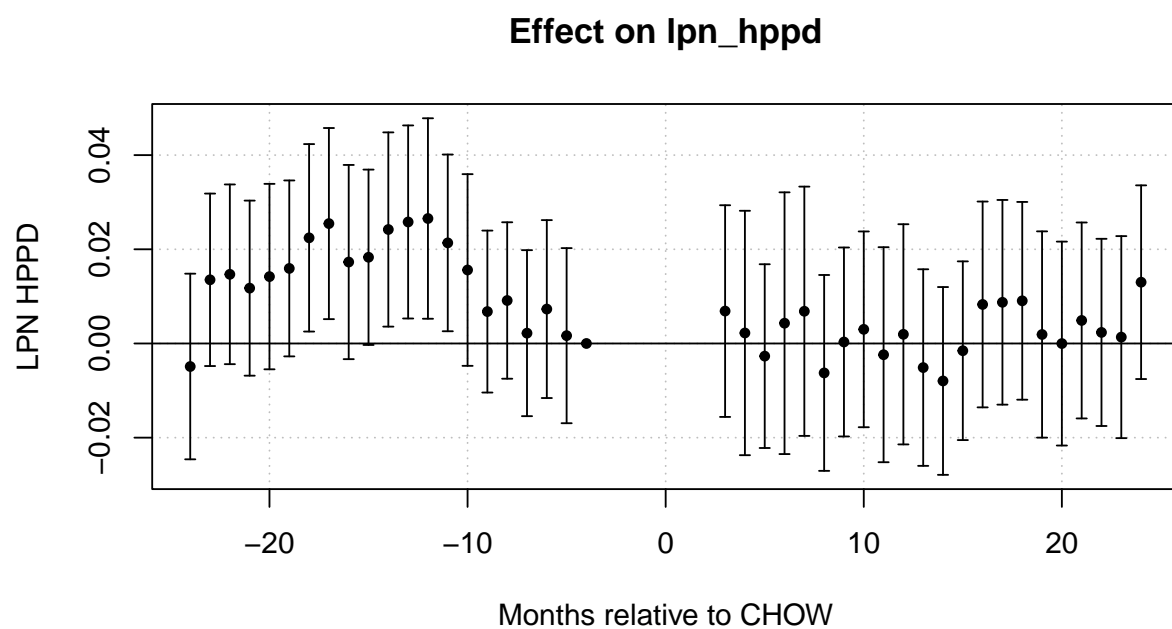
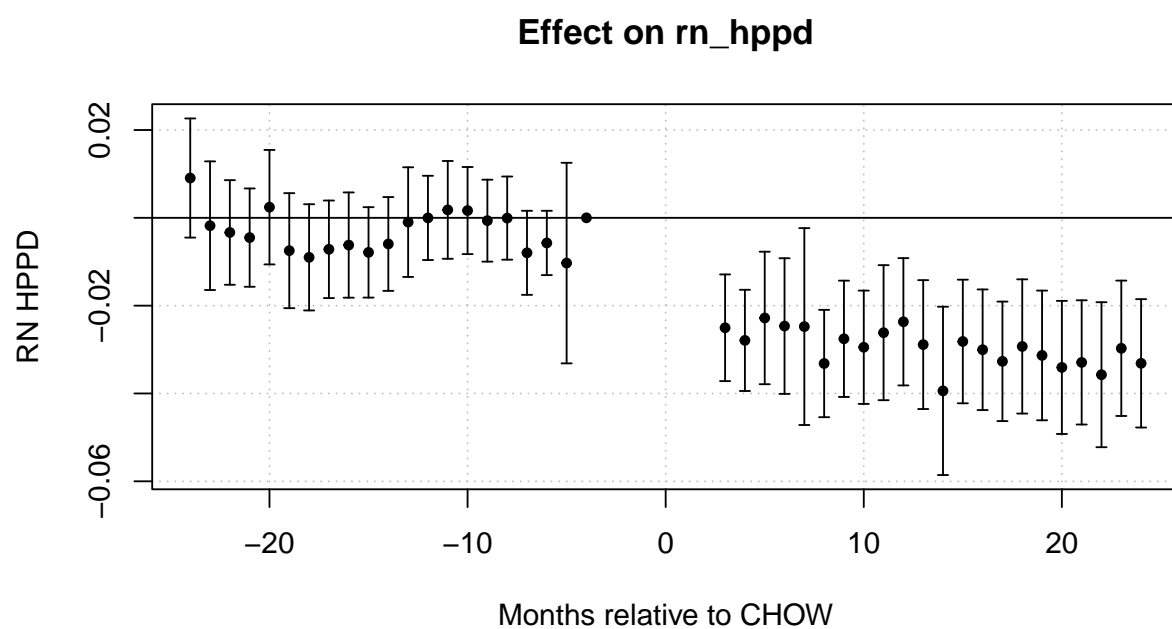
## Plots



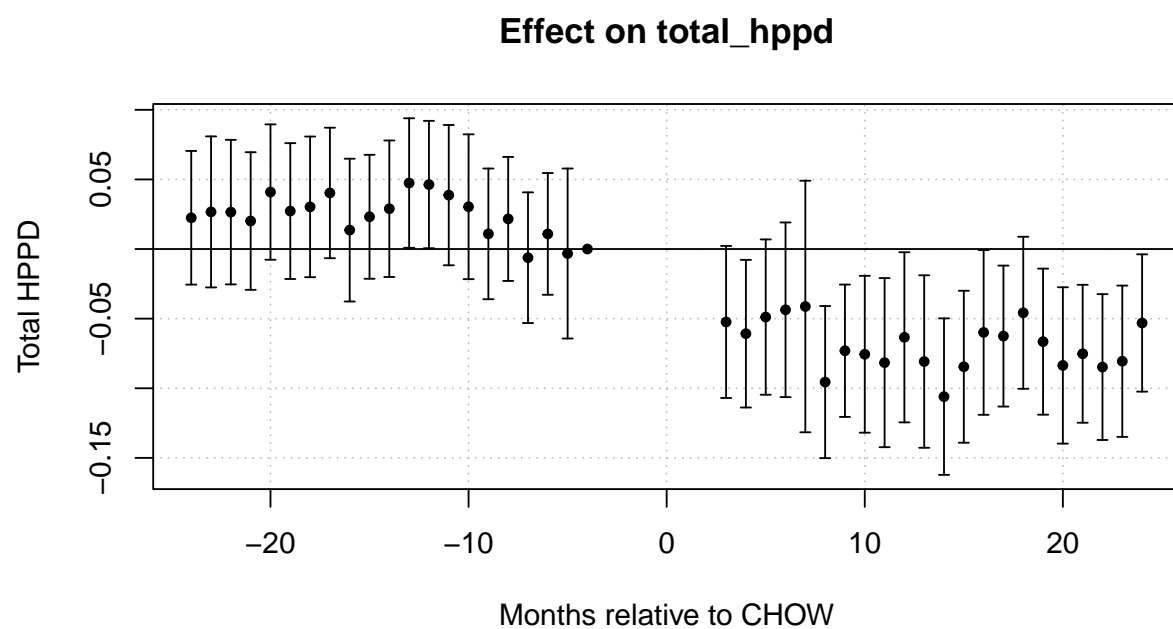
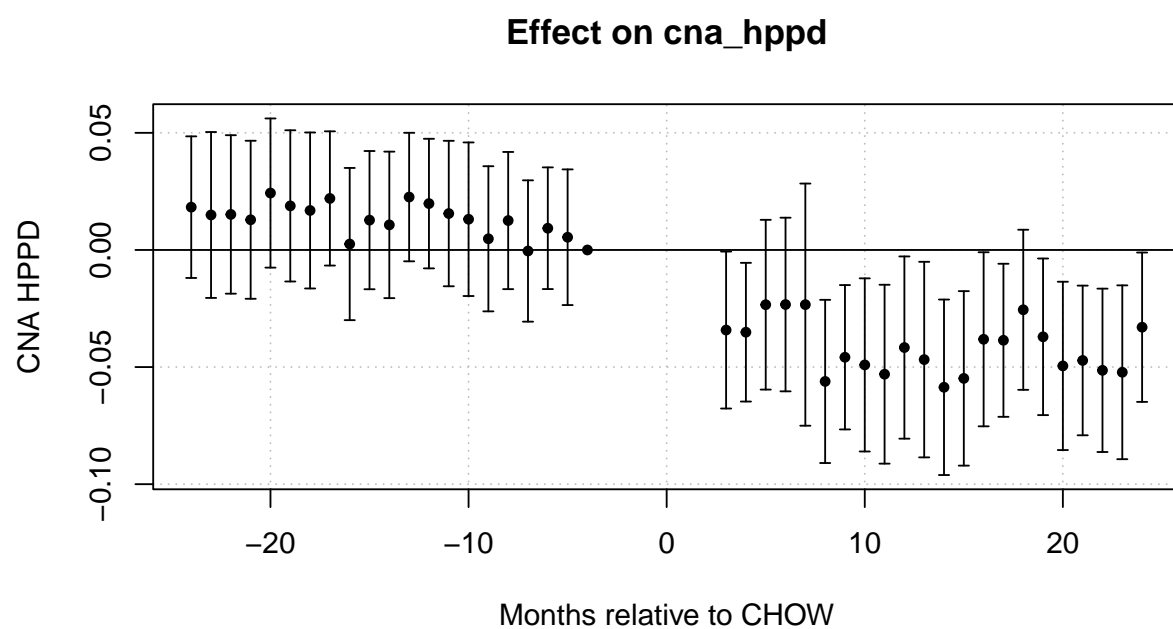




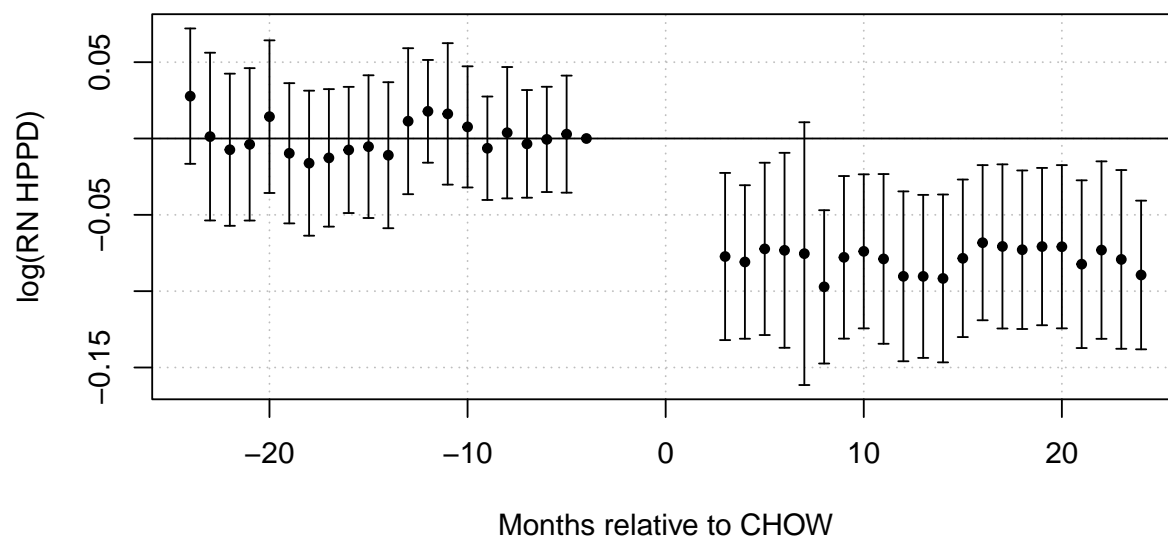








**Effect on  $\ln_{rn}$**



**Effect on  $\ln_{lpn}$**

