

Regression Results for TWFE Model

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October 20, 2025

Summary Table

Table 1: HPPD Regressions (Level–Level)

	RN HPPD	LPN HPPD	CNA HPPD	Total HPPD
Treatment	-0.034*** (0.005)	0.007 (0.006)	-0.043*** (0.010)	-0.070*** (0.014)
Government	0.013 (0.008)	-0.010 (0.011)	-0.045* (0.018)	-0.042+ (0.022)
Non-profit	0.023+ (0.014)	0.018 (0.015)	0.085** (0.026)	0.127*** (0.036)
Chain	0.002 (0.005)	-0.012* (0.006)	-0.046*** (0.009)	-0.056*** (0.012)
Beds	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
CCRC	-0.014+ (0.007)	-0.000 (0.008)	-0.008 (0.018)	-0.022 (0.026)
Occupancy rate	-0.002*** (0.000)	-0.004*** (0.000)	-0.004*** (0.000)	-0.009*** (0.001)
% Medicare	0.001 (0.001)	0.002*** (0.000)	0.002*** (0.001)	0.006*** (0.001)
% Medicaid	-0.000 (0.000)	-0.000+ (0.000)	-0.001*** (0.000)	-0.001*** (0.000)
Case-mix Q2 (state)	-0.004 (0.003)	0.001 (0.002)	0.009+ (0.005)	0.006 (0.007)
Case-mix Q3 (state)	-0.005 (0.007)	0.004 (0.003)	0.026*** (0.006)	0.025* (0.012)
Case-mix Q4 (state)	-0.013 (0.022)	0.014*** (0.003)	0.038*** (0.008)	0.039 (0.026)
Urban	0.005 (0.009)	-0.000 (0.011)	-0.018 (0.018)	-0.013 (0.024)
Num.Obs.	568141	568141	568141	568141

	RN HPPD	LPN HPPD	CNA HPPD	Total HPPD
R2	0.033	0.398	0.197	0.076
RMSE	2.36	0.32	0.97	2.71
Std.Errors	by: cms_certification_number & year_month	by: cms_certification_number & year_month	by: cms_certification_number & year_month	by: cms_certification_number & year_month
FE:	X	X	X	X
cms_certification_number				
FE:	X	X	X	X
year_month				
Facility FE	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes
SE type	2-way clustered	2-way clustered	2-way clustered	2-way clustered
• p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001				

Raw Summaries

`summary(m1)`

```
## OLS estimation, Dep. Var.: rn_hppd
## Observations: 568,141
## Fixed-effects: cms_certification_number: 7,242, year_month: 90
## Standard-errors: Clustered (cms_certification_number & year_month)
##               Estimate Std. Error t value Pr(>|t|)
## treatment      -0.0338440795   0.005162  -6.5567 0.0000000034996 ***
## government       0.0128837046   0.008057   1.5990 0.1133711736640
## non_profit       0.0232997479   0.013531   1.7220 0.0885502600493 .
## chain            0.0022591040   0.004743   0.4763 0.6349969349496
## num_beds        -0.0000000325   0.000001  -0.0325 0.9741394819437
## ccrc_facility    -0.0135994655   0.007387  -1.8410 0.0689595261164 .
## occupancy_rate  -0.0021347159   0.000203 -10.5190 < 2.2e-16 ***
## pct_medicare     0.0014703424   0.001058   1.3893 0.1682002437444
## pct_medicaid    -0.0000472165   0.000108  -0.4376 0.6627172756441
## cm_q_state_2     -0.0039396178   0.003246  -1.2138 0.2280191987064
## cm_q_state_3     -0.0052482502   0.007454  -0.7041 0.4832144244858
## cm_q_state_4     -0.0126790195   0.022400  -0.5660 0.5727993931415
## urban            0.0054307831   0.009260   0.5865 0.5590438865019
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 2.35803      Adj. R2: 0.019834
##                   Within R2: 6.267e-5
```

`summary(m2)`

```
## OLS estimation, Dep. Var.: lpn_hppd
## Observations: 568,141
## Fixed-effects: cms_certification_number: 7,242, year_month: 90
```

```
## Standard-errors: Clustered (cms_certification_number & year_month)
##               Estimate Std. Error   t value   Pr(>|t|)
## treatment      0.0065430860   0.005821    1.12406 0.26400928693
## government     -0.0098625904   0.010512   -0.93822 0.35066895207
## non_profit      0.0183870640   0.014637    1.25617 0.21234091978
## chain         -0.0121929790   0.005502   -2.21603 0.02923997906 *
## num_beds       -0.0000000206   0.000001   -0.02057 0.98363677822
## ccrc_facility  -0.0002076252   0.007632   -0.02720 0.97835733795
## occupancy_rate -0.0035095542   0.000198  -17.74329 < 2.2e-16 ***
## pct_medicare    0.0017798540   0.000319    5.57240 0.00000026478 ***
## pct_medicaid  -0.0001876666   0.000108   -1.74552 0.08434561331 .
## cm_q_state_2    0.0005684280   0.002210    0.25726 0.79757080716
## cm_q_state_3    0.0043004205   0.002750    1.56393 0.12138191341
## cm_q_state_4    0.0142694496   0.003449    4.13713 0.00007957948 ***
## urban         -0.0000705316   0.010838   -0.00651 0.99482225109
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 0.323538      Adj. R2: 0.389681
##                      Within R2: 0.007275
```

summary(m3)

```
## OLS estimation, Dep. Var.: cna_hppd
## Observations: 568,141
## Fixed-effects: cms_certification_number: 7,242, year_month: 90
## Standard-errors: Clustered (cms_certification_number & year_month)
##               Estimate Std. Error   t value   Pr(>|t|)
## treatment     -0.0430010641   0.009964   -4.3158 0.00004112334 ***
## government     -0.0452442449   0.017629   -2.5665 0.01194481993 *
## non_profit      0.0854025149   0.025891    3.2986 0.00139824030 **
## chain         -0.0460204523   0.008738   -5.2668 0.00000095622 ***
## num_beds       -0.0000000471   0.000001   -0.0471 0.96256323295
## ccrc_facility  -0.0078025183   0.017929   -0.4352 0.66447129383
## occupancy_rate -0.0038226498   0.000303  -12.6364 < 2.2e-16 ***
## pct_medicare    0.0023008806   0.000551    4.1782 0.00006846154 ***
## pct_medicaid  -0.0006996737   0.000171   -4.0945 0.00009293679 ***
## cm_q_state_2    0.0090276447   0.004600    1.9627 0.05280290355 .
## cm_q_state_3    0.0263770687   0.006213    4.2453 0.00005345281 ***
## cm_q_state_4    0.0375856168   0.008139    4.6180 0.00001298981 ***
## urban         -0.0183820220   0.018431   -0.9973 0.32129872987
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 0.96631      Adj. R2: 0.1865
##                      Within R2: 0.001383
```

summary(m4)

```
## OLS estimation, Dep. Var.: total_hppd
## Observations: 568,141
```

```

## Fixed-effects: cms_certification_number: 7,242, year_month: 90
## Standard-errors: Clustered (cms_certification_number & year_month)
##           Estimate Std. Error t value      Pr(>|t|)
## treatment      -0.0703021    0.013884  -5.064 0.0000022046 ***
## government      -0.0422231    0.022212  -1.901 0.0605463856 .
## non_profit       0.1270893    0.035986   3.532 0.0006567573 ***
## chain          -0.0559543    0.011960  -4.678 0.0000102637 ***
## num_beds        -0.0000001    0.000001  -0.100 0.9204549599
## ccrc_facility   -0.0216096    0.025807  -0.837 0.4046331395
## occupancy_rate  -0.0094669    0.000540 -17.517 < 2.2e-16 ***
## pct_medicare     0.0055511    0.001337   4.152 0.0000753384 ***
## pct_medicaid   -0.0009346    0.000267  -3.497 0.0007356536 ***
## cm_q_state_2     0.0056565    0.007416   0.763 0.4476230084
## cm_q_state_3     0.0254292    0.012015   2.117 0.0370928919 *
## cm_q_state_4     0.0391760    0.026210   1.495 0.1385308345
## urban          -0.0130218    0.023710  -0.549 0.5842366629
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## RMSE: 2.7101      Adj. R2: 0.06407
##                  Within R2: 8.526e-4

```