

Homelessness Housing Capacity in the U.S. (2024)

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```
knitr::opts_chunk$set(echo = TRUE, warning = FALSE, message = FALSE)
library(tidyverse)
```

```
## — Attaching core tidyverse packages ————— tidyverse 2.0.0 —
## ✓ dplyr     1.1.4    ✓ readr     2.1.6
## ✓forcats   1.0.1    ✓ stringr   1.6.0
## ✓ ggplot2   4.0.1    ✓ tibble    3.3.0
## ✓ lubridate 1.9.4    ✓ tidyverse  1.3.2
## ✓ purrr    1.2.0
## — Conflicts ————— tidyverse_conflicts() —
## ✘ dplyr::filter() masks stats::filter()
## ✘ dplyr::lag()    masks stats::lag()
## i Use the conflicted package (<http://conflicted.r-lib.org/>) to force all conflicts to become errors
```

```
library(readxl)
library(ggplot2)
```

Introduction

This project analyzes homelessness housing capacity across U.S. states using the 2024 HUD Housing Inventory Count (HIC) dataset. The goal is to understand how housing resources are distributed geographically and across housing types, and how well they meet the actual homeless population needs reported in the Point-in-Time (PIT) count.

Load and Prepare Data

Load HIC 2024

```
hic_raw <- read_excel(  
  "C:/Users/indyd/Downloads/2007-2024-HIC-Counts-by-State (2).xlsx",  
  sheet = "2024",  
  col_names = FALSE  
)  
  
hic_2024 <- hic_raw %>%  
  select(  
    state = ...1,  
    total_beds = ...2,  
    emergency_shelter = ...15,  
    transitional_housing = ...27,  
    permanent_supportive_housing = ...57  
  ) %>%  
  filter(!is.na(state)) %>%  
  mutate(  
    year = 2024,  
    total_beds = as.numeric(total_beds),  
    emergency_shelter = as.numeric(emergency_shelter),  
    transitional_housing = as.numeric(transitional_housing),  
    permanent_supportive_housing = as.numeric(permanent_supportive_housing)  
)  
  
# Load PIT 2024  
  
pit_raw <- read_excel(  
  "C:/Users/indyd/Downloads/2007-2024-PIT-Counts-by-State (2).xlsx",  
  sheet = "2024",  
  col_names = FALSE  
)  
  
pit_2024 <- pit_raw %>%  
  select(  
    state = ...1,  
    total_homeless = ...2,  
    sheltered = ...6,  
    unsheltered = ...8  
  ) %>%  
  filter(!is.na(state)) %>%  
  mutate(  
    year = 2024,  
    total_homeless = as.numeric(total_homeless),  
    sheltered = as.numeric(sheltered),  
    unsheltered = as.numeric(unsheltered)  
)  
  
# Join HIC + PIT to evaluate capacity vs need  
  
hic_pit_2024 <- hic_2024 %>%  
  inner_join(pit_2024, by = c("state", "year")) %>%  
  mutate(beds_per_person = total_beds / total_homeless)
```

Data Overview

```
# HIC overview
```

```
glimpse(hic_2024)
```

```
## Rows: 57
## Columns: 6
## $ state <chr> "State", "AK", "AL", "AR", "AZ", "CA", "C...
## $ total_beds <dbl> NA, 2039, 2205, 2036, 8884, 75938, 11392, ...
## $ emergency_shelter <dbl> NA, 1438, 1701, 1579, 6967, 61387, 8215, ...
## $ transitional_housing <dbl> NA, 601, 494, 457, 1831, 14078, 3114, 422...
## $ permanent_supportive_housing <dbl> NA, 1132, 2218, 594, 9360, 78758, 7257, 7...
## $ year <dbl> 2024, 2024, 2024, 2024, 2024, 2024, 2024, ...
```

```
summary(hic_2024)
```

```
##      state          total_beds    emergency_shelter transitional_housing
## Length:57          Min.   :  92       Min.   :  30       Min.   :  4
## Class :character  1st Qu.: 2138     1st Qu.: 1588     1st Qu.: 486
## Mode  :character  Median : 3656     Median : 2844     Median : 814
##                  Mean   :18535      Mean   :15344      Mean   :3109
##                  3rd Qu.: 8898      3rd Qu.: 6838      3rd Qu.:1933
##                  Max.  :509710     Max.  :421973     Max.  :85485
##                  NA's   :2         NA's   :2         NA's   :2
##      permanent_supportive_housing      year
##      Min.   :  22           Min.   :2024
##      1st Qu.: 1180          1st Qu.:2024
##      Median : 3805          Median :2024
##      Mean   :14445          Mean   :2024
##      3rd Qu.: 8364          3rd Qu.:2024
##      Max.  :397241         Max.  :2024
##      NA's   :2
```

```
# PIT overview
```

```
glimpse(pit_2024)
```

```
## Rows: 60
## Columns: 5
## $ state <chr> "State", "AK", "AL", "AR", "AS", "AZ", "CA", "CO", "CT"...
## $ total_homeless <dbl> NA, 2, 9, 5, 0, 3, 44, 4, 2, 1, 1, 27, 9, 1, 2, 3, 2, 1...
## $ sheltered <dbl> NA, 2015, 3564, 2230, NA, 11816, 160925, 12670, 2470, 3...
## $ unsheltered <dbl> NA, 624, 847, 603, NA, 3170, 42749, 3804, 616, 947, 239...
## $ year <dbl> 2024, 2024, 2024, 2024, 2024, 2024, 2024, 2024, 2024, 2024, 2...
```

```
summary(pit_2024)
```

```

##      state      total_homeless     sheltered     unsheltered
## Length:60      Min.   :  0.00    Min.   : 266    Min.   :  60.0
## Class :character 1st Qu.:  2.00    1st Qu.: 1968   1st Qu.: 551.5
## Mode  :character Median :  4.00    Median : 3989   Median : 1059.0
##                  Mean   :13.53    Mean   :20567   Mean   :5594.5
##                  3rd Qu.:10.00    3rd Qu.: 8982   3rd Qu.:2350.5
##                  Max.   :385.00   Max.   :565602  Max.   :153849.0
##                  NA's   :3        NA's   :5        NA's   :5

##      year
## Min.   :2024
## 1st Qu.:2024
## Median :2024
## Mean   :2024
## 3rd Qu.:2024
## Max.   :2024
##
```

```
# Combined HIC + PIT
```

```
glimpse(hic坑_2024)
```

```

## Rows: 57
## Columns: 10
## $ state                      <chr> "State", "AK", "AL", "AR", "AZ", "CA", "C...
## $ total_beds                  <dbl> NA, 2039, 2205, 2036, 8884, 75938, 11392, ...
## $ emergency_shelter           <dbl> NA, 1438, 1701, 1579, 6967, 61387, 8215, ...
## $ transitional_housing         <dbl> NA, 601, 494, 457, 1831, 14078, 3114, 422...
## $ permanent_supportive_housing <dbl> NA, 1132, 2218, 594, 9360, 78758, 7257, 7...
## $ year                        <dbl> 2024, 2024, 2024, 2024, 2024, 2024, 2024, ...
## $ total_homeless               <dbl> NA, 2, 9, 5, 3, 44, 4, 2, 1, 1, 27, 9, 1, ...
## $ sheltered                   <dbl> NA, 2015, 3564, 2230, 11816, 160925, 1267...
## $ unsheltered                 <dbl> NA, 624, 847, 603, 3170, 42749, 3804, 616...
## $ beds_per_person              <dbl> NA, 1019.5000, 245.0000, 407.2000, 2961.3...
```

```
summary(hic坑_2024)
```

```

##      state          total_beds    emergency_shelter transitional_housing
## Length:57          Min.   :  92       Min.   :  30       Min.   :   4
## Class :character  1st Qu.:2138     1st Qu.:1588     1st Qu.: 486
## Mode  :character  Median :3656      Median :2844      Median : 814
##                  Mean   :18535     Mean   :15344     Mean   :3109
##                  3rd Qu.: 8898     3rd Qu.: 6838     3rd Qu.:1933
##                  Max.  :509710     Max.  :421973     Max.  :85485
##                  NA's   :2        NA's   :2        NA's   :2
## permanent_supportive_housing      year      total_homeless      sheltered
## Min.   : 22           Min.   :2024      Min.   :  0.00      Min.   : 266
## 1st Qu.:1180          1st Qu.:2024      1st Qu.:  2.00      1st Qu.:1968
## Median : 3805          Median :2024      Median :  4.00      Median :3989
## Mean   :14445          Mean   :2024      Mean   :13.77      Mean   :20567
## 3rd Qu.: 8364          3rd Qu.:2024      3rd Qu.:10.00      3rd Qu.: 8982
## Max.  :397241          Max.  :2024      Max.  :385.00      Max.  :565602
## NA's   :2                NA's   :1        NA's   :2
## unsheltered          beds_per_person
## Min.   : 60.0          Min.   : 92.0
## 1st Qu.: 551.5          1st Qu.: 580.4
## Median :1059.0          Median :1006.0
## Mean   : 5594.5          Mean   :1299.1
## 3rd Qu.: 2350.5          3rd Qu.:1658.4
## Max.  :153849.0          Max.  :5323.3
## NA's   :2                NA's   :2

```

#Top States By Total Housing Capacity

```

hic_2024 %>%
arrange(desc(total_beds)) %>%
select(state, total_beds) %>%
slice(1:10)

```

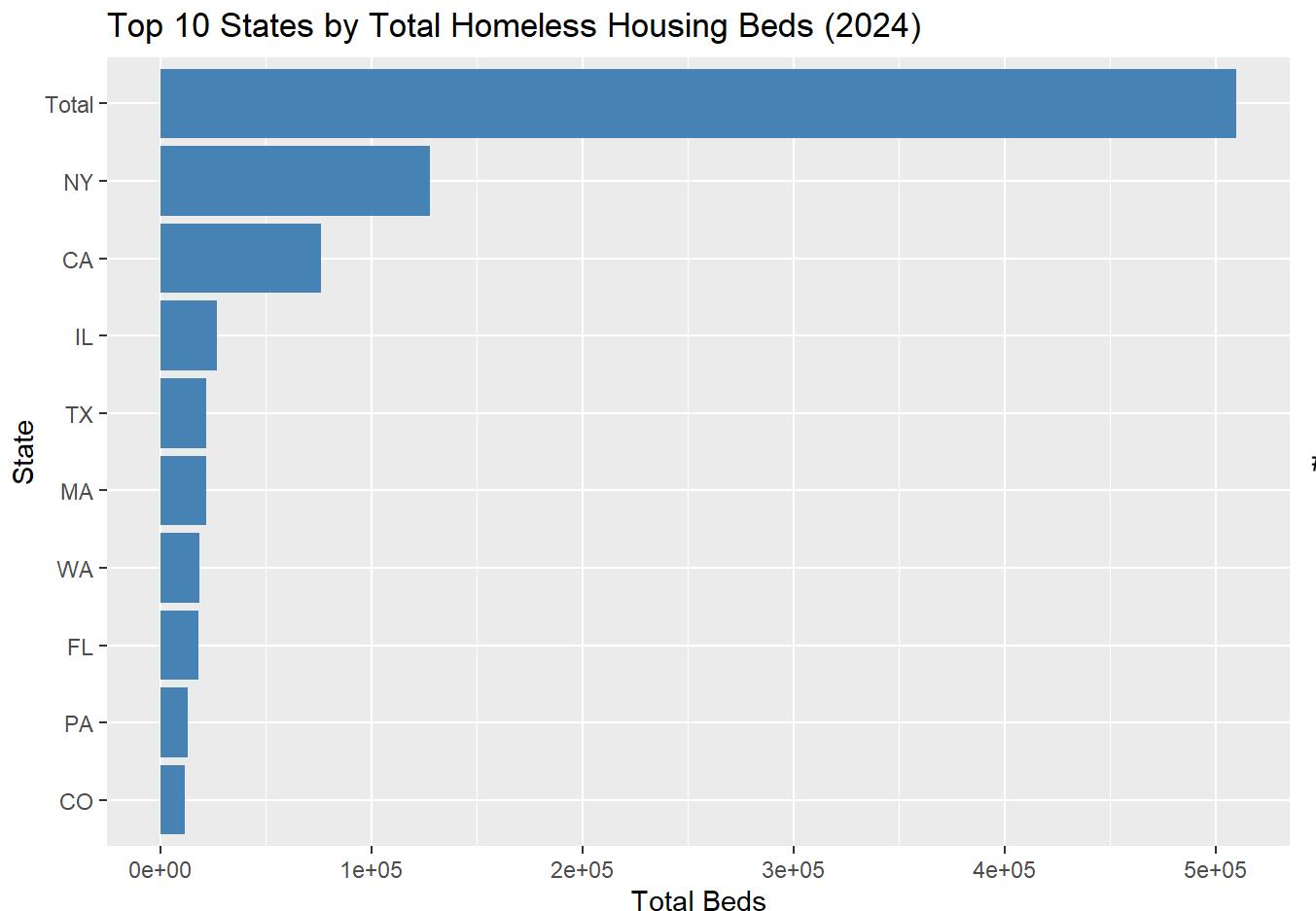
```

## # A tibble: 10 × 2
##      state total_beds
##      <chr>    <dbl>
## 1 Total    509710
## 2 NY       127759
## 3 CA       75938
## 4 IL       26838
## 5 TX       21721
## 6 MA       21531
## 7 WA       18291
## 8 FL       17974
## 9 PA       12756
## 10 CO      11392

```

Visualization: Total Beds By State

```
ggplot(
  hic_2024 %>% arrange(desc(total_beds)) %>% slice(1:10),
  aes(x = reorder(state, total_beds), y = total_beds)
) +
  geom_col(fill = "steelblue") +
  coord_flip() +
  labs(
    title = "Top 10 States by Total Homeless Housing Beds (2024)",
    x = "State",
    y = "Total Beds"
)
```



Housing Capacity vs Homelessness Need (2024)

By combining Housing Inventory Count (HIC) and Point-in-Time (PIT) datasets, we evaluate how housing capacity aligns with homelessness need across states. The beds-per-person metric highlights disparities in how effectively states can accommodate their homeless populations.

```
# Top states by beds per homeless person

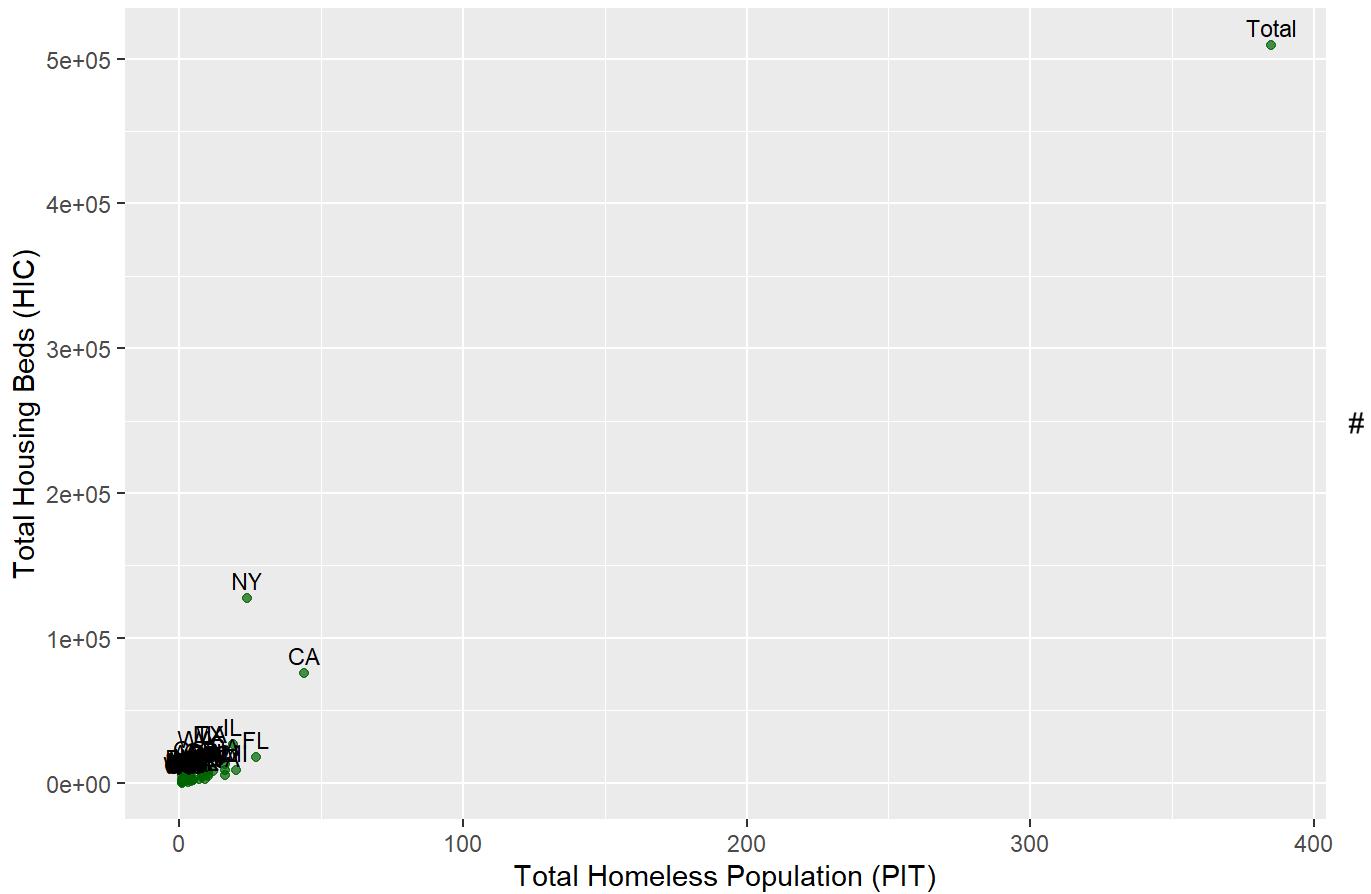
hic坑_2024 %>%
  arrange(desc(beds_per_person)) %>%
  select(state, beds_per_person) %>%
  slice(1:10)
```

```
## # A tibble: 10 × 2
##   state beds_per_person
##   <chr>      <dbl>
## 1 NY          5323.
## 2 DC          5218
## 3 IN          3092.
## 4 WA          3048.
## 5 AZ          2961.
## 6 CO          2848
## 7 ME          2833
## 8 MT          2102
## 9 TX          1975.
## 10 MA         1957.
```

Visualization: Capacity Versus Need

```
ggplot(hic_pit_2024, aes(x = total_homeless, y = total_beds)) +
  geom_point(alpha = 0.7, color = "darkgreen") +
  geom_text(aes(label = state), vjust = -0.5, size = 3) +
  labs(
    title = "Housing Capacity vs Homeless Population by State (2024)",
    x = "Total Homeless Population (PIT)",
    y = "Total Housing Beds (HIC)"
  )
```

Housing Capacity vs Homeless Population by State (2024)



Key Takeaways

- Housing capacity is highly concentrated in a small number of states.
- Permanent supportive housing represents a significant share of total beds in high-capacity states.
- Beds-per-person highlights states where capacity is relatively high or low compared to homelessness need.
- Differences in housing types and coverage reflect varying policy approaches across states.

Next Steps

Future analysis could explore trends over multiple years, assess types of housing vs. need, or examine correlations between unsheltered populations and housing resources.