

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

India Flores

December 2024

```
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      ✓ tidyr      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, 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_pit_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_pit_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
```

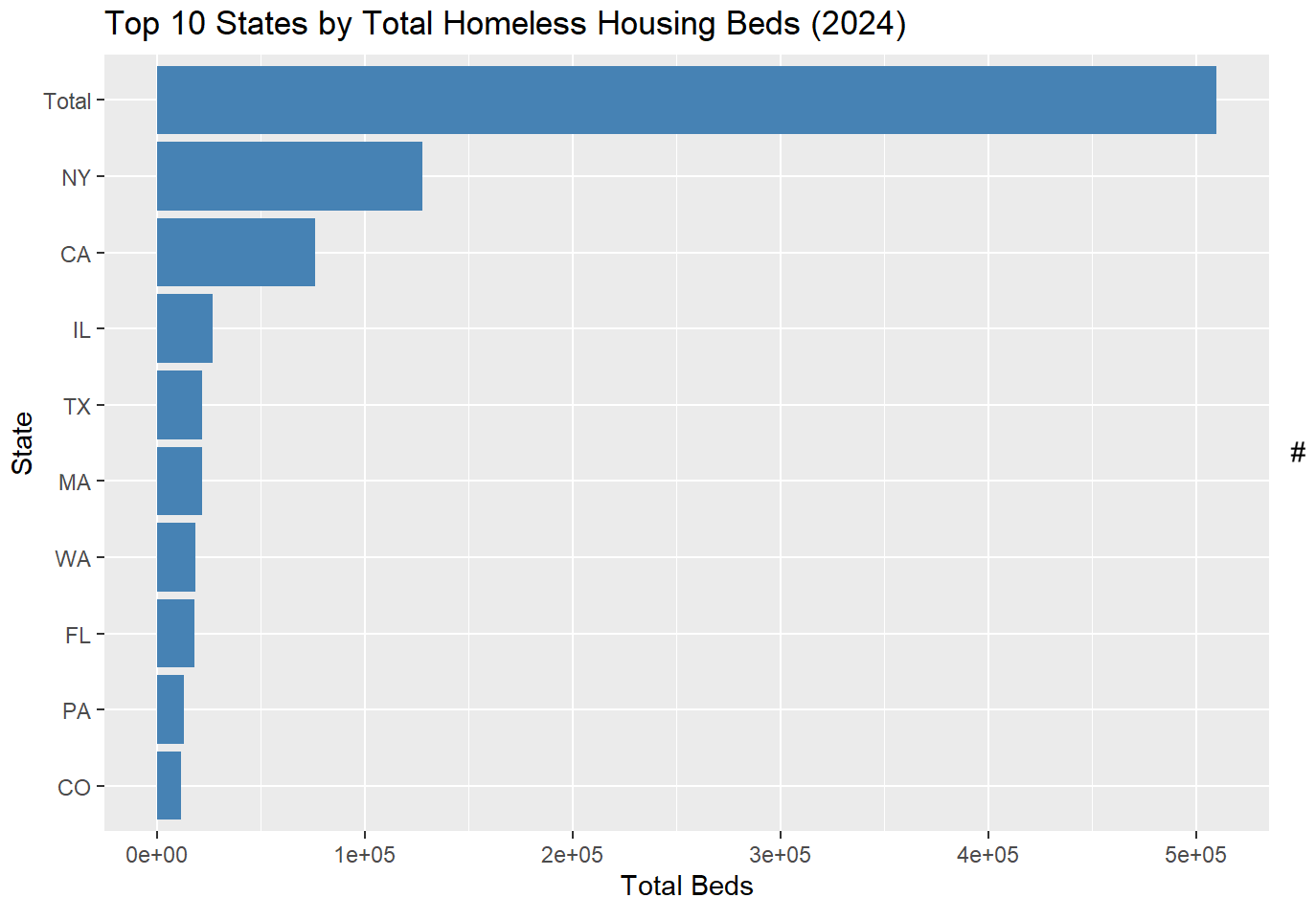
#Top States By Total Housing Capacity

```
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.

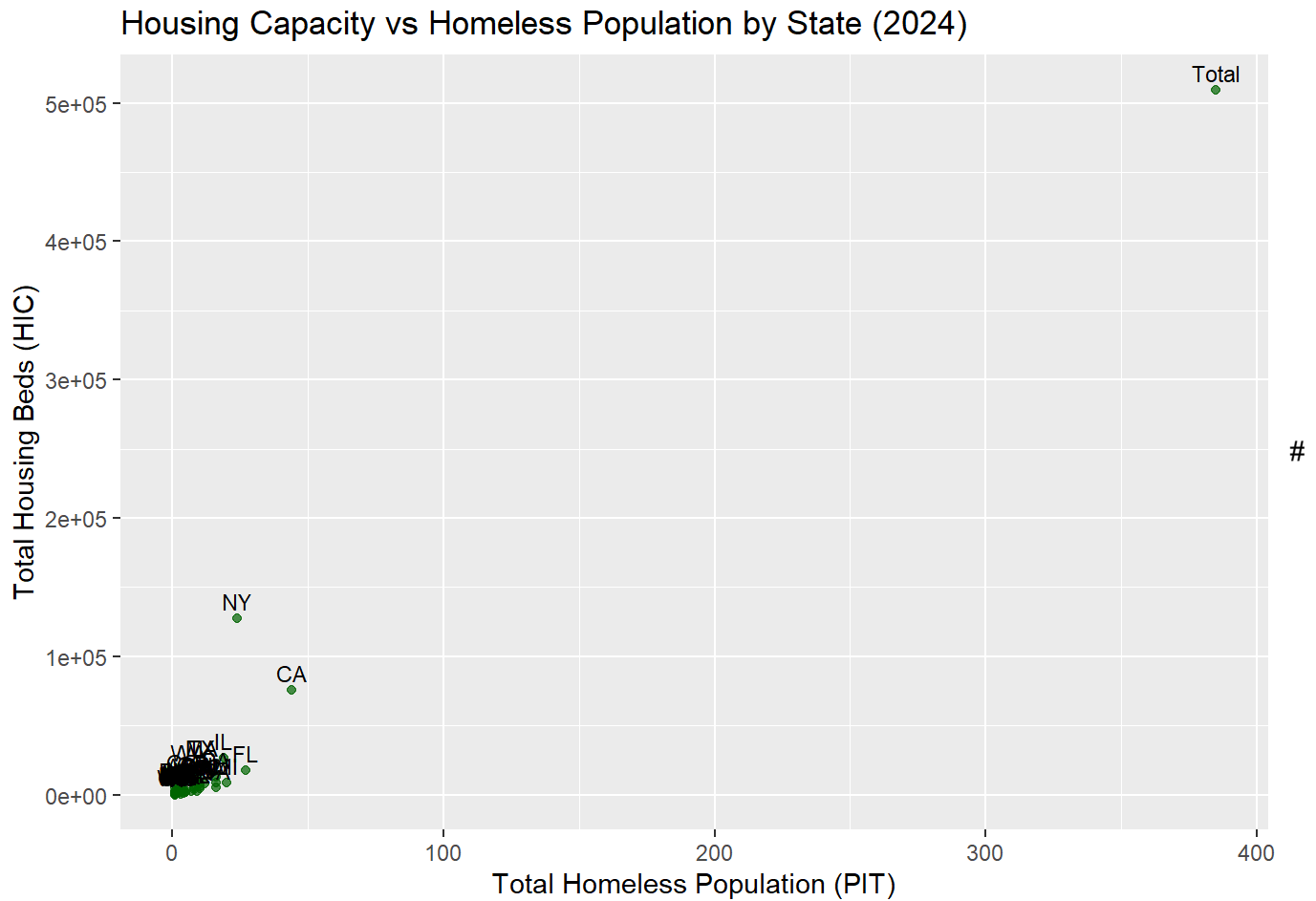
Top states by beds per homeless person

```
hic_pit_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)"
  )
```



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.