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Data Shop

Data Shop, a department of Cityscape, presents short articles or notes on the uses of data in housing and urban research. Through this department, the Office of Policy Development and Research introduces readers to new and overlooked data sources and to improved techniques in using well-known data. The emphasis is on sources and methods that analysts can use in their own work. Researchers often run into knotty data problems involving data interpretation or manipulation that must be solved before a project can proceed, but they seldom get to focus in detail on the solutions to such problems. If you have an idea for an applied, data-centric note of no more than 3,000 words, please send a one-paragraph abstract to david.a.vandenbroucke@hud.gov for consideration.

Measuring Homelessness and Resources to Combat Homelessness with PIT and HIC Data

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Introduction

In this article, I introduce readers to two U.S. Department of Housing and Urban Development (HUD) data sources measuring homeless populations and resources that are devoted to reducing homelessness. HUD's Point in Time (PIT) data contain homeless populations estimates (sheltered and unsheltered) and estimates for homeless subpopulations.

Housing Inventory Count (HIC) contains data on beds, units, and programs designated to serve homeless populations. PIT and HIC electronic data are currently available from 2007 through 2018 on the HUD Exchange web portal (2019a).

As a data analysis example, I merge the state level PIT and HIC data with state population and temperature data to examine how rates of homelessness, the proportion of homeless populations that are sheltered, and ratios of bed counts relative to homeless populations vary with January average temperatures.

In the next two sections, I describe the contents of the PIT and HIC data and how they are generated. I then discuss limitations of the PIT data. I describe the data analyzed and present data analysis examples the next two sections and summarize the article in the final section.

Point in Time Data

In this section, I describe how the PIT data are collected and the contents of the database. This section draws heavily on HUD's Point-In-Time Methodology Guide (2014) and Johnston (2012).

A Continuum of Care (CoC) is a consortium of providers within defined areas (states, Washington, D.C., Puerto Rico, and other U.S. territories) that provide a broad range of housing and services to homeless populations.

HUD requires CoCs to submit a count of the sheltered and unsheltered homeless population in their area. CoCs submit their PIT data with their annual applications for Homeless Assistance Grants.

HUD defines the sheltered homeless as:

> "An individual or family living in a supervised publicly or privately operated shelter designated to provide temporary living arrangement (including congregate shelters, transitional housing, and hotels and motels paid for by charitable organizations or by federal, state, or local government programs for low-income individuals)" (2014: 7).

HUD defines the unsheltered homeless as:

> "An individual or family with a primary nighttime residence that is a public or private place not designed for or ordinarily used as a regular sleeping accommodation for human beings, including a car, park, abandoned building, bus or train station, airport, or camping ground" (2014: 8).

PIT counts must be conducted during the last 10 days in January and represent all homeless persons who were sheltered and unsheltered. HUD (2014) provides guidance to CoCs on developing their PIT data.

CoCs report PIT data by household type (households with at least one adult and one child, households without children, and households with only children) and on subpopulations (unsheltered homeless youth, veterans, and persons experiencing chronic homelessness).

HUD requires CoCs to submit annual PIT data on the sheltered homeless. Sheltered counts are reported by project type: emergency shelter, Safe Haven, and transitional housing.

Many CoCs develop their sheltered count data from their Homeless Management Information System (HMIS) data. A HMIS is a local information technology system used to collect client-level data and data on the provision of housing and services to homeless individuals and families and persons at risk of homelessness (HUD, 2019b). Each CoC is responsible for selecting an HMIS software solution that complies with HUD's data collection, management, and reporting standards.

When HMIS data are insufficient for generating sheltered counts, CoCs supplement their HMIS data with project- and client-level surveys.

HUD encourages CoCs to report counts of the unsheltered homeless population annually, but they must do so every 2 years. Unsheltered persons are not generally recorded in HMIS; as such the unsheltered count is more involved and more costly to produce than the sheltered count.

There are two approved methods that CoCs can use for conducting their unsheltered PIT count: the night of count approach, and the service-based (post-night) count approach.

The night of count approach involves "counting people who are staying in public or private places not designated for or ordinarily used as a regular sleeping accommodation for human beings, including cars, parks, abandoned buildings, buses or train stations, airports, or camping grounds during the hours between sunset and sunrise" (HUD, 2014: 51).

There are three approved methods for collecting data when using the night of count approach:

1. Complete coverage count.
2. Known locations count.
3. Random sample of areas count.

A complete coverage count involves attempting to count every unsheltered homeless person during a single night. While conducting a complete coverage count, however, CoCs might not be able to conduct interviews sufficient to obtain all the demographic characteristics of unsheltered people required. If CoCs are not able to conduct interviews at the same time as the night of the count, "a statistically relevant sampling method should be used to provide a valid and reliable basis to determine demographic characteristics of all persons counted" (HUD, 2014: 52).

A known locations count involves identifying the specific locations that will be visited by volunteers on the night of the count. "CoCs should use an informed and reasonable basis for identifying known locations where unsheltered people are likely to be residing on the night of the count" (HUD, 2014: 53).

The random sample of areas count method involves sampling using high and low probabilities for designated geographic areas where unsheltered homeless people might be on the night of the count. Enumerators are expected to visit every high-density area and a statistically valid sample of low-density areas on the night of count.

CoCs using the service-based approach conduct interviews with users of non-shelter services during a specific time period. CoCs using this approach will often hold a specific event that is likely to attract homeless persons, such as provision of healthcare services or a special meal (Johnston, 2012). Although this method requires the CoC to determine who has already been counted, it tends to reach homeless people who choose to use the services available and who might be difficult to count otherwise due to where they choose to sleep (Johnston, 2012).

Housing Inventory Count Data

Along with PIT data, HUD also requires CoCs to submit HIC data annually. HIC data consist of an annual inventory of the beds, units, and programs designated to serve the CoC's homeless population. HIC data are reported by household types served (households with at least one adult and one child, households without children, and households with only children). The HIC data are often pulled directly from the CoC's HMIS.

Critique of Point in Time Data

Van Dam (2019), Boone (2019), and Hopper et al. (2008) discuss limitations of the PIT data. According to Boone, "PIT counts are widely understood to undercount the number of people experiencing homelessness by a significant margin—some experts say by half or more" (Boone, 2019). Daniel Flaming of the Los Angeles-based Economic Roundtable believes that the PIT counts "are conservative, and they provide a low-end estimate" (Van Dam, 2019).

Kelly Cutler of the Coalition on Homelessness, quoted in Boone (2019), argues that scheduling the PIT count in winter leads to an undercount because "The count is during the winter early in the morning, when it's harder to actually find folks because they're seeking some sort of refuge. They want to stay out of sight in general for their own safety."

As evidence of undercounting, Boone (2019) cites statistics from the U.S. Department of Education on homeless children attending public schools. According to the National Center for Education Statistics (2017), 1.3 million homeless children attended public schools in 2015. The total PIT homeless count for 2015 was 564,708.

The discrepancy between the HUD and U.S. Department of Education homeless counts can be at least partly explained by the differences in definitions of homelessness. The U.S. Department of Education identifies students as homeless "if they lack a fixed, regular, and adequate nighttime residence" (NCES, 2017). This definition would include students who may be "temporarily doubled up with other families or sharing housing due to loss of housing, economic hardship, or other reasons (such as domestic violence); living in hotels or motels; living in shelters or other forms of temporary housing; or living in unsheltered situations (for example, living in cars, parks, campgrounds, Federal Emergency Management Agency (FEMA) trailers, or abandoned buildings)," (NCES, 2017).

The U.S. Department of Education definition of homelessness includes categories of homelessness (temporarily doubled up with other families, for example) that would not be included in the HUD definition used for generating PIT data.

Hopper et al. (2008) found that New York City reports underestimated the city's unsheltered population and, in their research, present methods they found to increase the accuracy of estimates of the unsheltered homeless population.

The PIT data have also been criticized for not including margins of error. According to Daniel Flaming, if margins of error were available, they would be large (Van Dam, 2019).

Description of Data Analyzed

In this section, I describe the data analyzed in the following section and present summary statistics.

I use 2018 PIT data to compute state rates of homelessness and the proportion of state homeless populations that are sheltered. As an alternative measure of resources relative to homeless populations, I use 2018 PIT and HIC data to compute ratios of state bed counts relative to the estimated state homeless populations, expressed as percentages. This alternative measure reflects the fact that resources devoted to combatting homelessness may not always be effective in sheltering homeless individuals, due to where they may choose to sleep.

To measure the homeless population relative to state population, I compute a rate of homelessness per 10,000 population, which equals 10,000 multiplied by the homeless population estimate divided by estimated state population. State population estimates were taken from the U.S. Census Bureau's Population Estimates Program for 2018 and were available for the 50 states, Washington, D.C., and Puerto Rico.

To measure the proportion of state homeless populations that are sheltered, I divided the 2018 PIT total sheltered count for each state by the 2018 PIT total homeless count. I express the proportions in percentage terms.

To measure state bed counts relative to the estimated state homeless population, I divided the 2018 HIC total state bed counts by the 2018 PIT total state homeless counts. I express the ratios in percentage terms in order to make them easier to compare with the proportion of state homeless populations that are sheltered.

In the next section, I explore how the three previously mentioned homelessness measures vary with state average temperatures for January 2018, the month in which the 2018 PIT data were collected.

State temperature data were taken from The National Oceanic and Atmospheric Administration's Climate Divisional Database (2019). Monthly average temperature data were only available for 49 states, excluding Hawaii.

Exhibit 1 contains summary statistics for the rate of homelessness per 10,000 population (hereafter referred to as the homelessness rate), the proportion of homeless populations that are sheltered (hereafter referred to as the proportion sheltered), the ratio of beds relative to the estimated homeless population (hereafter referred to as the bed ratio), and January average temperatures for 2018.

- The homelessness rate has a mean of 15.7, a standard deviation of 15.1, and varies from 4.5 in Mississippi to 98.3 in Washington, D.C., with a median of 10.6.
- The proportion sheltered has a mean of 71.1 percent, a standard deviation of 22.0 percent, and varies from 2.1 percent in the Northern Mariana Islands to 96.1 percent in Maine, with a median of 75.4 percent in South Dakota.

- The bed ratio has a mean of 81.4 percent, a standard deviation of 25.5 percent, and varies from 2.9 percent in the Northern Mariana Islands to 133.9 percent in North Dakota, with a median of 86.5 percent in Louisiana.
- Average January 2018 temperatures (in 49 states, excluding Hawaii) have a mean of 29.4 degrees Fahrenheit, a standard deviation of 10.6 degrees, and vary from 6.8 degrees in Alaska to 55.1 degrees in Florida, with a median of 29.7 degrees in Colorado.

Exhibit 1

Summary Statistics

Variable	N	Mean	Std. Dev.	Min	Median	Max
Rate of Homelessness per 10,000 Population	52	15.737	15.091	4.527	10.620	98.284
Proportion of the Homeless Population That is Sheltered (%)	55	71.1%	22.0%	2.1%	75.4%	96.1%
Ratio of Beds Relative to the Homeless Population (%)	55	81.4%	25.5%	2.9%	86.5%	133.9%
January Average Temperature (Degrees Fahrenheit)	49	29.355	10.560	6.800	29.700	55.100

Sources: PIT data, 2018; HIC data, 2018; Population Estimates Program, 2018; NOAA Climate Divisional Database, 2018

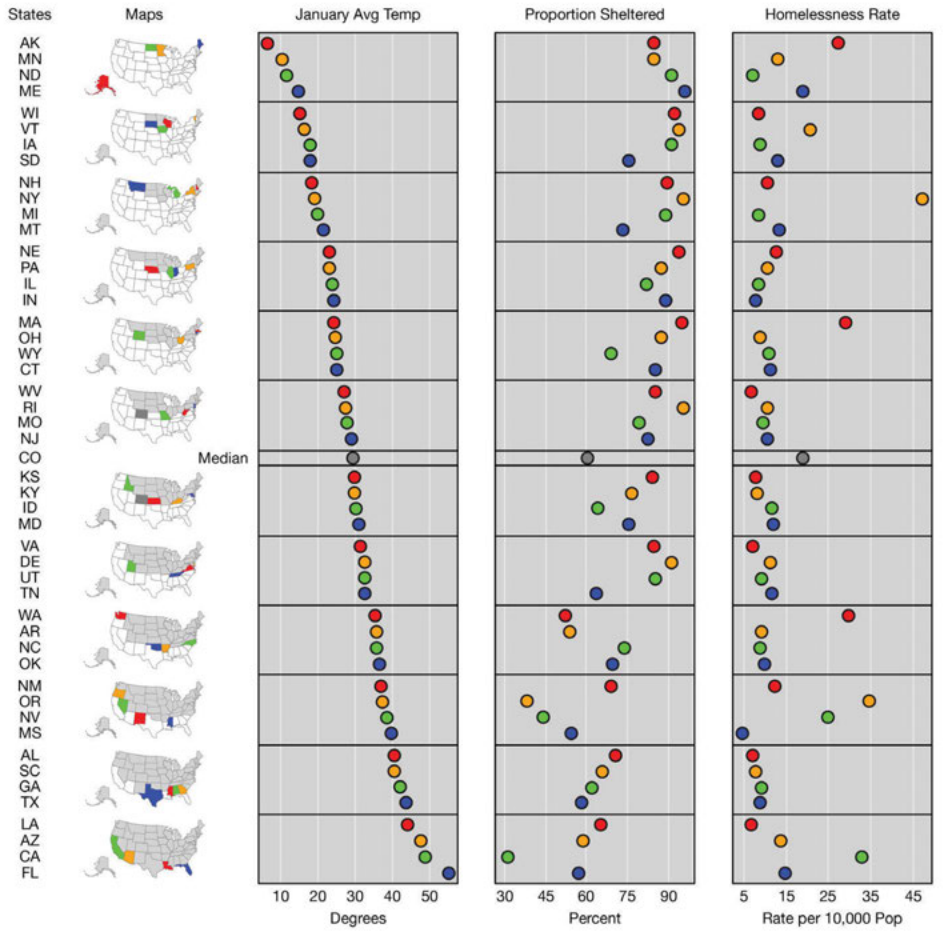
Data Analysis

In this section, I explore how three state measures of homelessness for 2018—the homelessness rate, the proportion sheltered, and the bed ratio—vary with state average temperatures for January 2018. I also explore the relationship between the proportion sheltered and the bed ratio.

Exhibit 2 presents a linked micromap with columns of data for state January average temperature, the proportion sheltered, and the homelessness rate. The data are sorted by January average temperature and are only presented for the 49 states (excluding Hawaii) for which temperature data were available.

Exhibit 2

Linked Micromap of January Average Temperatures, Proportions Sheltered, and Homelessness Rates



Sources: PIT data, 2018; Population Estimates Program, 2018; NOAA Climate Divisional Database, 2018

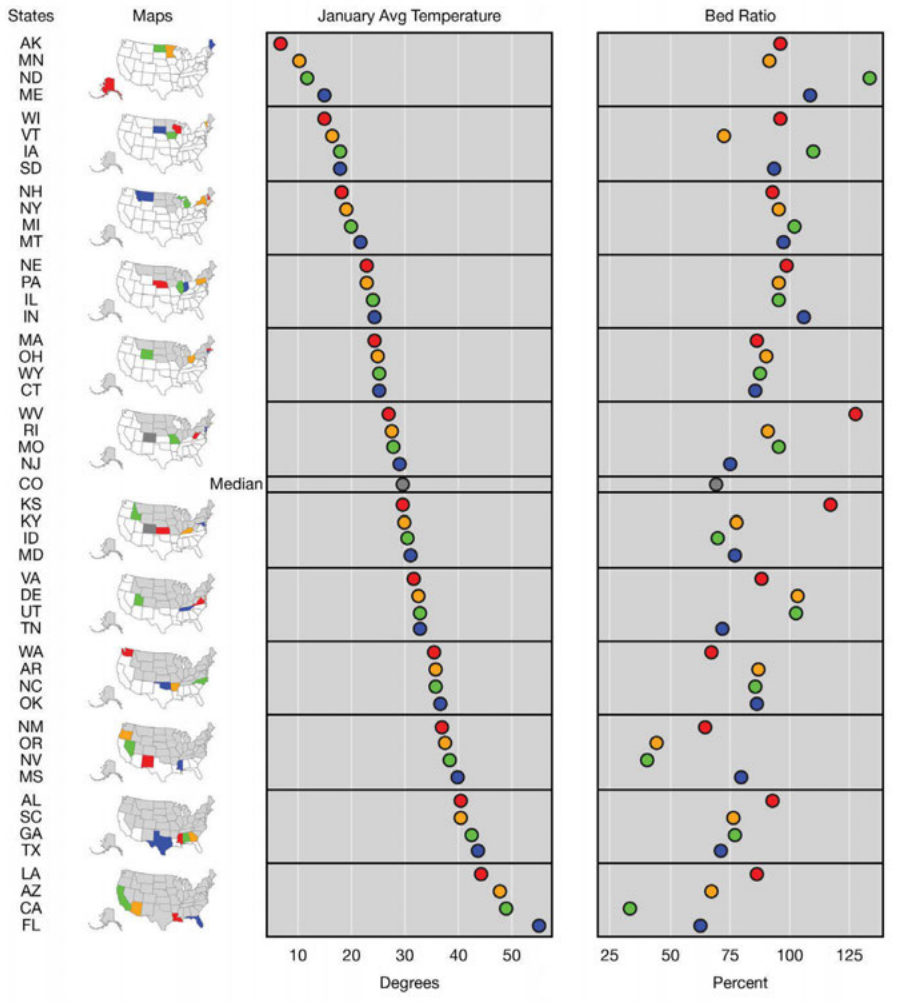
Exhibit 2 reveals an inverse relationship between average temperature and proportion sheltered—the proportion sheltered tends to decrease as January average temperature increases. The Pearson correlation coefficient between the two variables is –.744 (p-value < .0001). The inverse relationship could reflect less necessity for providers to shelter homeless populations in warmer winter climates, or a decreased preference of homeless people to seek winter shelter in warmer states.

The data in exhibit 2 indicate that there is little relationship between January average temperatures and homelessness rates; the Pearson correlation coefficient between the two variables is –.056 (p-value = .702).

Exhibit 3 presents a linked micromap with columns of data for January average temperature and the bed ratio. The data are sorted by temperature. Similar to the data in exhibit 2 for temperature and the proportion sheltered, the data in exhibit 3 indicate that there is an inverse relationship between January average temperatures and bed ratios. The Pearson correlation coefficient between the two variables is –.610 (p-value < .0001).

Exhibit 3

Linked Micromap of January Average Temperatures and Bed Ratios



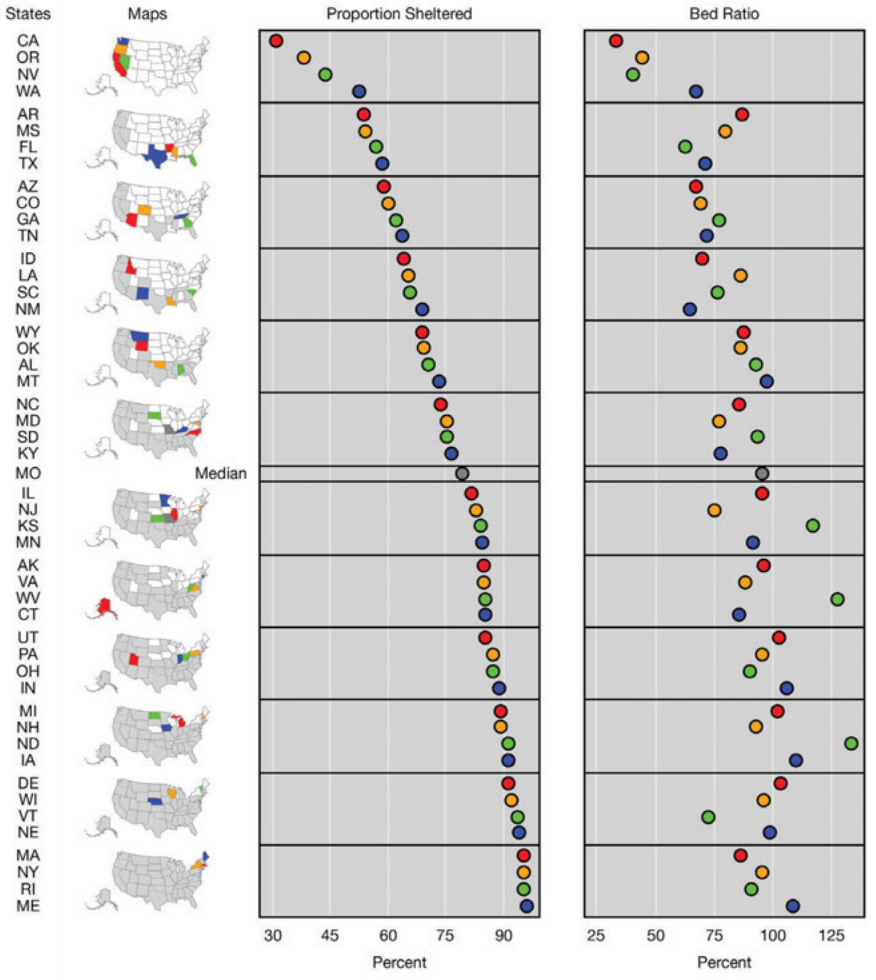
Sources: PIT data, 2018; HIC data, 2018; NOAA Climate Divisional Database, 2018

The data in exhibit 3 reveal that in nine states (Delaware, Indiana, Iowa, Kansas, Maine, Michigan, North Dakota, Utah, and West Virginia) the bed ratio exceeds 100 percent. One should be cautious in interpreting a bed ratio exceeding 100 percent as an indicator of excess bed capacity in that state, given concerns that PIT data undercount the true homeless population (Boone, 2019; Hopper et al., 2008; Van Dam, 2019).

Finally, I explore the relationship between proportions sheltered and bed ratios. Exhibit 4 reports a linked micromap with columns of data for the proportion sheltered and the bed ratio; the data are sorted by the proportion sheltered.

Exhibit 4

Linked Micromap of Proportions Sheltered and Bed Ratios



Sources: PIT data, 2018; HIC data, 2018

The data in exhibit 4 indicate that the proportion sheltered tends to be lower than the bed ratio—the bed ratio exceeds the proportion sheltered in 43 out of 49 states.

The exhibit 4 data also reveal a positive relationship between the proportion sheltered and the bed ratio; the Pearson correlation coefficient between the two measures is .778 (p-value < .0001). The positive relationship between the proportion sheltered and the bed ratio reflects the fact that one might expect a greater proportion of homeless persons to be sheltered when more beds are available relative to the homeless population.

Conclusion

In this article, I introduce readers to HUD's Point in Time (PIT) data, which provide estimates of the sheltered and unsheltered homeless population and subpopulations and characteristics of the homeless population. I also discuss HUD's Housing Inventory Count data, which includes annual data on the beds, units, and programs designated to serve homeless populations.

I critique the PIT data, which have been criticized for undercounting the true homeless population, particularly the unsheltered homeless.

I present data analysis examples where I compute 3 state-level measures: the rate of homelessness per 10,000 residents, the proportion of the state homeless population that is sheltered, and the ratio of beds available to shelter the homeless relative to the homeless population.

I then examine how these three measures vary with January average temperatures for the month of January (the month in which the PIT data are collected). I find that January average temperatures are inversely related to the proportion of the homeless population that is sheltered and the ratio of beds relative to the homeless population. I find little relationship between January average temperatures and state rates of homelessness.

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References

Boone, Alastair. 2019. "Is There a Better Way to Count the Homeless?" *CityLab*, March 4. https://www.citylab.com/equity/2019/03/homeless-crisis-oakland-california-hud-point-in-time-data/584023/.

Hopper, Kim, Marybeth Shinn, Eugene Laska, Morris Meisner, and Joseph Wanderling. 2008. "Estimating Numbers of Unsheltered Homeless People Through Plant-Capture and Postcount Survey Methods," *American Journal of Public Health* 98 (8): 1438–1442.

Johnston, Mark. 2012. "Using Data to Understand and End Homelessness." Washington, DC: U.S. Department of Housing and Urban Development, Office of Community Planning and Development. https://www.huduser.gov/portal/periodicals/em/summer12/highlight2.html.

National Center for Education Statistics (NCES). 2017. "Homeless Children and Youth in Public Schools." Washington, DC: NCES. https://nces.ed.gov/programs/coe/indicator_tgh.asp.

National Oceanic and Atmospheric Administration (NOAA). 2019. "Climate Divisional Database." Washington, DC: NOAA. ftp://ftp.ncdc.noaa.gov/pub/data/cirs/climdiv/.

"U.S. Department of Housing and Urban Development (HUD). 2019a. "PIT and HIC Data Since 2007." Washington, DC: HUD. https://www.hudexchange.info/resource/3031/pit-and-hic-data-since-2007/.

———. 2019b. "Homeless Management Information System." Washington, DC: HUD. https://www.hudexchange.info/programs/hmis/.

———. 2014. "Point-in-Time Count Methodology Guide." Washington, DC: HUD. https://files.hudexchange.info/resources/documents/PIT-Count-Methodology-Guide.pdf.

Van Dam, Andrew. 2019. "The Surprising Holes In Our Knowledge of America's Homeless Population," *The Washington Post*, September 18. https://www.washingtonpost.com/business/2019/09/18/surprising-holes-our-knowledge-americas-homeless-population/.