VERA INSTITUTE OF JUSTICE

CENTER ON SENTENCING AND CORRECTIONS

Incarceration Trends:

Data and Methods for Historical Jail Populations in U.S. Counties, 1970-2014

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Introduction

Incarceration Trends, a project of the Vera Institute of Justice, aims to inform the public debate on mass incarceration and help guide change by providing easily accessible information on the number of people in jails and prisons for every county in the United States.

The centerpiece of the project is a new data tool—available at trends.vera.org—that collates and analyzes publically available, but disparately located, data about incarceration. This tool can be used for reference and measurement by justice system stakeholders and others looking to understand how their jail is being used and how it compares with others, and to spot problem areas—such as excessive growth or racial or ethnic disparities.

Currently, the *Incarceration Trends* tool includes jail data for every one of the approximately 3,000 counties in the country and combined jail and prison data for every county in New York and California.[1] In the months and years ahead, Vera will incorporate additional data on the number in prisons, by county, for all 50 states.

The purpose of this document is to provide detail on the sources and methods used to compile the jail information which the *Incarceration Trends* tool accesses. The first analysis using this tool can be found in *In Our Own Backyard: Confronting Growth and Disparities in American Jails* (Subramanian, Henrichson, and Kang-Brown, December 2015).

Background

Research on mass incarceration usually centers on state-level data: state prison populations or the statewide combined prison and jail population. Using the state as the unit of analysis is sufficient for understanding the broad contours of incarceration in the United States, but it does not provide the level of detail necessary to help policymakers reduce the use of incarceration. This is because although *state* law dictates criminal penalties, these laws are interpreted and deployed in practice by police, prosecutors, judges, and others at the *local level* (counties and cities). Therefore, county-level data, and specifically data on how counties use the local jail, are fundamental to a thorough understanding of the justice-system. Yet comprehensive and comparable historical

[1] Six states (Alaska, Connecticut, Delaware, Hawaii, Rhode Island, and Vermont) do not participate in the Bureau of Justice Statistics jails data collections because they do not have local jails. In these places, the state corrections department operates both jails and prisons. Recent estimates of pretrial detention and short (under one year) sentences in these states would sum to an additional 2 percent of U.S. jail population on a single day (15,806 people). The county-level prison data for California and New York provide information on the number of people sentenced to prison from each county in the state.

county-level information is not available. Vera researchers sought to address this gap by developing a dataset using the available federally-collected data.

Vera's *Incarceration Trends* project uses data collected by the U.S. Department of Justice Bureau of Justice Statistics (BJS): The BJS Census of Jails, which covers *all* jails and is conducted every five to eight years, and the Annual Survey of Jails, which covers about one-third of jails—and includes nearly all of the largest jails—has been conducted in non-census years since 1985.[2] Vera researchers merge this data at the county-level, from every year it is collected, enabling one to analyze local-level change over time and explore the origins and growth of mass incarceration in the United States.

This technical report details the methodology used to create the *Incarceration Trends* dataset and reviews the sources and data processing techniques. It concludes with a discussion of the limitations of the data and the opportunities for future research this new resource provides.

Data Sources and Methods

The information Vera researchers collected centers on inmate population data from the BJS Census of Jails and Annual Survey of Jails.[3] Annual demographic data for county

[2] Data collections used: Annual Survey of Jails, 2014 (ICPSR 36274); Annual Survey of Jails, 2013 (ICPSR 35517); Annual Survey of Jails: Jail-Level Data, 2012 (ICPSR 34884); Annual Survey of Jails: Jail-Level Data, 2011 (ICPSR 33722); Annual Survey of Jails: Jail-Level Data, 2010 (ICPSR 31261); Annual Survey of Jails: Jail-Level Data, 2009 (ICPSR 29081); Annual Survey of Jails: Jail-Level Data, 2008 (ICPSR 28281); Annual Survey of Jails: Individual Reporting-Level Data, 2007 (ICPSR 24641); Annual Survey of Jails: Jurisdiction-Level Data, 2006 (ICPSR 20368); Census of Jail Inmates: Individual-Level Data, 2005 (ICPSR 20367); Annual Survey of Jails: Jurisdiction-Level Data, 2004 (ICPSR 20200); Annual Survey of Jails: Jurisdiction-Level Data, 2003 (ICPSR 4635); Annual Survey of Jails: Jurisdiction-Level Data, 2002 (ICPSR 4428); Annual Survey of Jails: Jurisdiction-Level Data, 2001 (ICPSR 3883); Annual Survey of Jails: Jurisdiction-Level Data, 2000 (ICPSR 3882); National Jail Census, 1999 (ICPSR 3318); Annual Survey of Jails: Jurisdiction-Level Data, 1998 (ICPSR 2682); Annual Survey of Jails: Jurisdiction-Level Data, 1997 (ICPSR 2313); Annual Survey of Jails: Jurisdiction-Level Data, 1996 (ICPSR 6856); Annual Survey of Jails: Jurisdiction-Level Data, 1995 (ICPSR 6784); Annual Survey of Jails: Jurisdiction-Level Data, 1994 (ICPSR 6538); National Jail Census, 1993 (ICPSR 6648); Annual Survey of Jails: Jurisdiction-Level and Jail-Level Data, 1992 (ICPSR 6395); Annual Survey of Jails: Jurisdiction-Level and Jail-Level Data, 1991 (ICPSR 6511); Annual Survey of Jails: Jurisdiction-Level Data, 1990 (ICPSR 9569); Annual Survey of Jails: Jurisdiction-Level Data, 1989 (ICPSR 9373); National Jail Census, 1988 (ICPSR 9256); Annual Survey of Jails: Jurisdiction-Level Data, 1987 (ICPSR 9074); National Survey of Jails: Jurisdiction-Level and Jail-Level Data, 1986 (ICPSR 8871); Annual Survey of Jails: Jurisdiction-level and Jail-level Data, 1985 (ICPSR 8687); National Jail Census, 1983 (ICPSR 8203); National Jail Census, 1978 (ICPSR 7737); National Jail Census, 1972 (ICPSR 7638); and, finally, National Jail Census, 1970 (ICPSR 7641). The Survey of Jails was also conducted in 1982 and 1984, but is not included in the Vera dataset because the results are not publically available in digital format.

[3] Although the BJS jail definition covers many local places where one is held in custody, it does not include police and sheriff lock-ups, halfway houses, or prison pre-release centers. See also Richard S. Frase, "Jails," in *The Handbook of Crime and Punishment*, ed. Michael Tonry (New York: Oxford University Press, 1998), 475 ("The federal definition of a *jail* is underinclusive . . . .").

population from the U.S. Census Bureau is used in combination with the jail to calculate incarceration and admission rates. This section provides further detail on these data and the methods used to organize the data at the county level.

Jails data

Why do we have national jail data since 1970? One reason is that in 1965, the President's Commission on Law Enforcement and Administration of Justice requested that the National Council of Crime and Delinquency conduct an analysis of correctional agencies and institutions.[4] This study worked with the U.S. Census to make a representative sample of 250 counties in 1965, but found that more data was needed.[5] A few years later, in 1970, the U.S. Census and the Department of Justice's Bureau of Justice Statistics conducted the first jail census.[6]

For the *Incarceration Trends* project, Vera researchers use the information collected on people held in jail from the Census of Jails data collections in 1970, 1978, 1983, 1988, 1992, 1999, and 2005.[7] Census data from 2013 will be added once released. The researchers also use the Annual Survey of Jails that has been fielded in the intercensal years since 1985. The survey captures all of the nation's largest jails and a representative sample of hundreds of others that is used to estimate the total U.S. jail population.[8]

The jail population and admission data that Vera researchers draw from the BJS data collections are among the variables that are most consistently reported by jails. Therefore, the database imports these variables with no modification.[9] Because data is not collected for every jail in every year, the database uses linear interpolation to estimate the missing data. Through the use of linear interpolation, Vera researchers are assuming that the jail

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[4] For summary of this request and research, see Frederick Ward, Jr., "Introduction," *Crime & Delinquency* 13(1967): iii; and "Local Adult Correctional Institutions and Jails," *Crime & Delinquency* 13(1967):136-157.

[5] See implication 9 of 10, "Local Adult Correctional Institutions and Jails," 156. The final report on this research, citing the Manhattan Bail Project, also concluded "*The number of persons held in jail awaiting trial can be sharply reduced.*" Ibid., 151-152. (Emphasis in original).

[6] National Jail Census, 1970 (ICPSR 7641).

[7] BJS also conducted a jail census in 1972, which is not included in the *Incarceration Trends* data collection because of its proximity to the 1970 census and lack of comparable information. The 2013 Census of Jails has not been released as of the publication of this paper.

[8] For a discussion of sampling methodology, see Todd D. Minton and Zhen Zeng, *Jail Inmates at Midyear 2014*, Bulletin (Washington, DC: U.S. Department of Justice, Bureau of Justice Statistics, 2015, NCJ 248629),10. See also the codebook in Annual Survey of Jails, 2014 (ICPSR 36274), 63.

[9] There are a few cases of obvious data errors that Vera researchers do correct. If a county's overall jail population declined by more than 90 percent in a given year, Vera researchers checked to see if the main jail in that county had failed to respond to a survey. In those cases, Vera used the prior year's responses. These cases are as follows: In 2013, Dallas County, TX; 2014 for Oklahoma County, OK; and 2010 for Plymouth County, MA.

population (or admissions) would have increased, or decreased, at a constant rate between the two years when data is available.

In order to preserve the local justice focus, Vera researchers removed two types of facilities from the database: (1) federal jail facilities, which were only collected in 1993, 1999, 2000, and 2005 to2014, and (2) all privately run and contract facilities that operate more like prisons and only held individuals from outside the county where the facility is located.

County-level data

Since the *Incarceration Trends* project's focus is local, it looks at data from the level of the 3,143 U.S. counties or county equivalents.[10] (Hereafter, the term "county" is used to describe counties and county-equivalents.) This project aggregates individual jails to their county. This approach is generally straight-forward since most counties have their own jail. But many, typically smaller, counties do not have a jail and thus rely on a multi-jurisdictional jail.

Multi-jurisdictional jails

There are an estimated 435 counties, representing 4 percent of the U.S. population, that appear to have no jail apart from a temporary holding facility (e.g. police lockup), and therefore must rely on another jurisdiction for pretrial detention or non-prison sentences of incarceration. Multi-jurisdictional jails may be "regional jails," such as those in Virginia and West Virginia, that are generally flagged as such in the BJS data collection. Or they may not be identified in a formal way, but provide jail beds to an often small neighboring county. For instance, Vera researchers found that Boise County (population 7,000) in Idaho sends people to a jail run by adjacent Ada County (population 390,000). Consequently, in these cases, the number of inmates in multi-jurisdictional jails exceeds the number of inmates sent to the jail by the county where the jail is physically located. Without any further adjustment, this would overstate the jail population for the county where the multi-jurisdictional jail is located.

Vera researchers addressed this problem by identifying the sending and receiving counties (meaning the counties that use and the counties that operate regional jails, respectively), and the year that the sending county last reported data to BJS. Then, Vera apportioned the multi-jurisdictional jail population, distributing jail data to the sending counties based on their share of the combined resident population. For example, if a

[10] The U.S. Census uses county equivalent to describe divisions of a state comparable to counties for statistical purposes, such as parishes in Louisiana; boroughs in Alaska; the District of Columbia; and the independent cities of the states of Virginia, Maryland, Missouri, and Nevada. In the data tables, the District of Columbia is considered both a county and, where appropriate, a state. New York City contains five counties but is reported as one for this analysis.

regional jail holds 100 inmates and serves two counties, one with 90,000 residents, and the other with 10,000 residents, this method assumes 10 inmates are from the smaller, sending county and 90 from the larger, receiving county.[11]

In order to identify multi-jurisdictional cases, Vera researchers used the 2006 census of jail facilities and reviewed all of the 435 counties that *did not* have a respondent to the jail survey. Vera researchers identified many of the nonrespondent counties as sending counties, and paired them with their receiving counties that ran the multi-jurisdictional jail through Internet research. For counties that researchers could not pair with a multi-jurisdictional jail through Internet research, Vera placed telephone calls to sheriff's departments in those counties that do not operate a jail and asked whether they had any arrangements in place to send people to other jails. Most shared this information. Through follow-up research, Vera determined that 161 counties contain a multi-jurisdictional (or regional) jail. Of the counties with no respondents, 275 utilize a single multi-jurisdictional jail.[12] These counties are weighted by population and jail data is apportioned from the receiving county as described above.

U.S. Census data

Vera researchers used the U.S. Census Bureau's decennial census as well as the American Community Survey (ACS) to source variables for community characteristics. The project uses intercensal population estimates for individual years between 1970 and 2010, and 2014 post-censual estimates, all available from U.S. Census.[13]

Resident population, by age. To get a more accurate picture of incarceration rates, people under the age of 15 and over 64 were removed from the general population for the purposes of calculating incarceration and admission rates, since these groups are at very low risk of jail incarceration. Because the proportion of these groups varies greatly by

[11] While this approach does not account for jail-relevant factors like crime or police activity, it allows us to apply a fix nationwide, especially in cases that would otherwise grossly overstate incarceration rates in counties with multi-jurisdictional jails. These fixes are time sensitive. For instance, if a county reported jail numbers to BJS in the 1970s and 1980s, and stopped in the 1990s, the database would start the apportionment in the 1990s only.

[12] A smaller number of cases, 41 counties, use various jails in more than one county. Of the 41 counties, over half were from five states: Nebraska (six), Minnesota (five), Kansas (four), Montana (four), and South Dakota (four). Some of these counties have data for earlier years, but in later years that they did not respond to BJS data collections, these split counties were not covered in this database. This is because Vera researchers could not determine from which county to apportion jail information. Vera was unable to identify the current jail arrangements in place for just over 100 small counties.

[13] Vera used the following files: Intercensal County Estimates by Age, Sex, Race: 1970-1979; 1980-1989 Intercensal County Estimates by Age, Sex, Race; Intercensal Estimates (1990-2000) Age by Sex by Race by Hispanic Origin; 2000-2010 Intercensal Estimates - April 1, 2000 to July 1, 2010 by Age, Sex, Race and Hispanic Origin; and vintage 2014 Annual County Resident Population Estimates by Age, Sex, Race, and Hispanic Origin. All current post-censal and historical inter-censal population estimates are available online at https://perma.cc/5X9Z-HHNL.

county, keeping them in would skew rates and make comparisons between counties difficult. Note that this method differs from most other calculations of statewide and national incarceration rates, which use either the total resident population or the population aged 18 and older.

Resident population, by race and by gender. Using the same age limits as above (15 to64), Vera researchers collect resident population by race and gender categories available as single year estimates at the county level from the U.S. Census.[14] The federal Office of Management and Budget standards for the collection of data on race and ethnicity changed in 1977 and again in 1997. In order to preserve comparability to the jails data, which has used a combined set of race and ethnicity categories in a single question since 1985 (see "Confined Population by Race and by Gender"), Vera researchers only use the Census race data from 1990, when it is first available using a combined set of ethnicity and race categories.

Population density. This data is collected to shade maps on the web tool, calculated using the land area of the county and the size of the total resident population.

Income. Median household income data in each county were collected from the five-year estimates provided by the 2013 American Community Survey. This combines information from 2009 to2013 into a single estimate for each county in the United States.

Jail variable description

As discussed above, the jail admissions and population data are extracted without modification from the BJS data collections. Vera researchers, however, make a few calculations to improve the comparability of these data across counties.

Jail population. BJS collects two measures of the confined population: (1) the average daily jail population (often called "ADP") and (2) the confined population on a given day, usually the last weekday in June. The *Incarceration Trends* project's measure of the jail population is the ADP. The confined population is only used when ADP was not collected (as in some of the older surveys) or is missing.[15] Vera subtracts the number of people held on behalf of federal authorities, such as the U.S. Marshals Service or U.S. Immigration and Customs Enforcement, because the inclusion of this population skews

[14] The following categories are available at the county level for ethnicity ("Hispanic or Latino" or "not Hispanic or Latino"); for race ("American Indian or Alaska Native (AIAN)," "Asian," "Black or African American (Black)," "Native Hawaiian or Other Pacific Islander (NHOPI)," and "White"); and for gender ("female" and "male").

[15] There appears to be data reporting or data entry error for a small number of cases. When that occurs, the database uses the confined population.

analyses of local justice systems.[16] This jail population figure is also the basis for the project's incarceration rates.

Confined population by race and by gender. BJS has collected information on single day confined female and male population since 1970, and confinement by a set of race and ethnicity categories since 1985.[17] Vera researchers use these data points to calculate group-specific jail incarceration rates for county residents with the available census data described above. Because these questions on race and gender are not asked by custody status, the totals may sum to higher than the above local jail total, since that subtracts the number of people held for other, non-local authorities.[18] Due to limits in the U.S. Census data, single year estimates at the county level using the current standard federal race and ethnicity categories are only available from 1990 to present.

Jail admissions. Jail admissions are an important indicator of a jail's reach, since many stay for only short periods of time. This indicator is not a measurement of unique people, as some may be sent to jail multiple times in given year. This measurement also does not count movements to court or medical services, only new admissions to jail. BJS has asked this question at different time scales, collecting new admissions in a:

- Typical Week: 1978
- Year (July to June): 1983-1991
- 24-hour Period (June 30): 1992-1993
- Last Week in June: 1998-2014.

Vera researchers adjust these numbers so they all reflect *annual* admissions. Because jail admissions vary greatly on a daily basis, the database does not use BJS admissions and discharge data for 1992 to 93 (when it was collected as a 24-hour count). Additionally, these data were not collected from 1994 to 97. Therefore, these data for 1992 to 1997 are estimated using linear interpolation.

Indicators of jail usage. Average ***length of stay*** is the estimated time a person on average spends in jail. This is calculated by multiplying the average daily jail population by 365 (days in a year), to derive what corrections officials call "bed-days," and dividing

[16] Data on people held in local jails on behalf of federal authorities has been collected since 1978, except during 1994 to 1997. Missing data is estimated in these years using linear interpolation.
[17] BJS does not currently collect information on transgender people in jail through the jail survey or census; and the current race and ethnicity categories are substantially similar to those first used in 1985. They include "Hispanic or Latino," and the following, all specified as "not of Hispanic origin": "American Indian / Alaska Native," "Asian," "Black or African American," "Native Hawaiian or Other Pacific Islander, "Two or more races," and "White."
[18] This is primarily a concern in counties with large facilities that hold people as inmates for a local jurisdiction as well as for other local, state, and federal authorities. Because the numbers held for other authorities are often higher, this could distort various indicators, from jail admissions to gender and race demographic characteristics.

this result by the number of annual admissions. Jail-bed ***turnover*** is the average proportion of beds occupied by people that are spending either their first or last day in jail. This is calculated by dividing the sum of the total annual jail admissions and the total annual jail discharges by 365 (days in a year) and dividing this result by the average daily jail population.

Conclusion

The creation of the *Incarceration Trends* tool and database allows Vera and other researchers to readily explore important questions connected to local incarceration. In the coming months and years, Vera will add data on people in state prisons by county of sentence, as well as other county-level criminal justice and socio-economic indicators that can help identify the factors that have driven incarceration growth in U.S. counties.