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Fatal Lock-up: An Examination of Prison and Parole Mortality in United States' State Correctional System

This paper seeks to provide an in-depth examination of mortality in both the incarcerated and paroled populations for three different years – 1986, 1991, and 1997. In addition to providing a description of mortality in these two populations, this paper examines several hypotheses: 1) Mortality levels among paroled persons who committed a violent offense have higher than among those who were incarcerated for non-violent offenses; (2) States with higher levels of poverty have higher levels of mortality for both populations; (3) Mortality levels inside prisons are greater than the overall trends observed in the non-incarcerated and non-paroled population; however when the male population is divided amongst the major racial groups represented in prison, mortality levels for African American men in prison are less than or equal to that of African American men overall.

Reporting the elevated level of mortality due to the environment of prison, i.e. the high prevalence of life-threatening diseases, some of which are contagious, is certainly of importance. It is also an expected result. Furthermore, having a result contrary to the expected outcome is a significant finding with several implications. For example, it suggests that the conditions of life outside of prison or prior to prison are worse than that of prison.

Additionally, this research is of great significance because the effects of prison extend beyond the prison's walls, posing a double jeopardy to those that survive. Contraction of a disease can limit one's ability to obtain and maintain employment. Additionally, the prison record limits advancement and even employment in the job market. The literature consistently shows a positive relationship between socioeconomic status and health[1]. Thus, the lowered likelihood of obtaining a job leads to many factors that contribute to higher mortality in populations. Examining parole and prison mortality create a foundation in examining this link – the link between prison, socioeconomic status, and mortality.

DATA

This paper utilizes several data sets collected by the Bureau of Justice Statistics to examine mortality and the amount of time lived in the life-states of interest between 1980 and 2000. The Survey of Inmates in Correctional Facilities is available for the years 1974, 1979, 1986, 1991 and 1997. This survey provides nationally representative information on inmates in state prisons, and information for both state and federal prisons in 1991 and 1997. The survey has a two-stage stratifying design, where the first level is the selection of prisons and the second level is the selection of inmates within the prisons. The survey collects valuable information such as background and personal characteristics, as well as criminal history through personal interviews.

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[1] Adler, Nancy E. et al. 1994. "Socioeconomic Status and Health: The Challenge of the Gradient." *American Psychologist* 49:15-24.

Feinstein, Jonathan S. 1993. "The Relationship between Socioeconomic Status and Health: A review of the Literature." *The Milbank Quarterly* 71:279-322.

Preston, Samuel H., and Paul Taubman. 1998. "Socioeconomic Differences in Adult Mortality and Health Status." in *Demography of Aging*, edited by L. G. Martin and Samuel H. Preston. Washington, DC: National Academy Press.

Smith, James P. 1999. "Healthy Bodies and Thick Wallets: The Dual Relation between Health and Economic Status." *Journal of Economic Perspectives* 13:145-166.

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The National Corrections Reporting Program (NCRP) data, which come from the National Archive of Criminal Justice Data, provides comprehensive records of admissions, releases, and releases from parole for each calendar year from 1983 to 2001. The records are individual-level, providing descriptive information such as age, sex, education, race, state, ethnicity, the offense resulting in incarceration, prior prison time, and prior jail time for each inmate. The number of states reporting varies year to year. Thus, these data sets are not comprehensive at the national level, but only for the states that choose to report. Between 1985 and 2000, the number of states reporting varies from 35 to 40. These data alone do not provide enough information for estimate mortality in prison or on parole. However, combining this information with the National Adult Correction Census (NACC) does.

The National Adult Correction Census is available for 1984, 1990, 1995, and 2000. It gives prison-level state specific information concerning the number of inmates, stratified by sex. Combined with the NCRP data, I will project both forwards and backwards to compute the total population for the years between 1983 and 2001 for the states that chose to report. Subsequently, I will use the Survey of Inmates in Correctional Facilities to estimate the number of persons incarcerated by age, sex, race, ethnicity, and duration. This base population will then be used to calculate most of the rates necessary for all incarceration computations utilized in this dissertation.

The last judicial source of information comes from a spreadsheet prepared by the Bureau of Justice Statistics, which contains state-specific year-end counts for persons on parole for 1975-1998. However, the figures lack further stratification by race and sex. Bonczar and Beck[2] determined the age structure of the parole population in their paper by assuming the age-composition for those still remaining on parole is equal to those released from parole in a given year. My estimates use the assumption of stability to reconstruct the age distribution using the growth rate and the age-specific deaths, and age-specific entrances into parole above age 18.

Calculating rates used in the analyses requires not only the admissions, parole, and prison release data found in the correctional datasets, but also information on age-race-sex specific death rates for the non-prison population and a census of the prison population to provide accurate estimation of the persons-years of exposure to risk of occurrence. Estimation of the age-sex-race specific death rates uses the Multiple Cause of Death data for the years. The denominator for the rates comes from estimates of the yearly mid-year population based on the census estimates that were projected forward via the cohort-component method. The last source of information also comes from the Census bureau – 2 tables that present national and state level information on the percentage poverty in the United States.

METHODOLOGY

Estimating the mortality of the parole population poses a methodological problem in terms of a denominator, because the data sources do not contain age-specific information on the total paroled population. However the age-specific entrances and exits for the paroled population are known. This information combined with the assumption of population stability (population increasing at the same rate over time) enables the estimation of the parole population structure using the equations developed by Preston and Coale[3]:

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[2] Bonczar, Thomas P., and Allen J. Beck. 1997. "Lifetime likelihood of Going to State or Federal Prison." Pp. 1-13 in *Bureau of Justice Statistics Special Report*: U.S. Department of Justice, Office of Justice Programs.

[3] Preston, S. H., and A. J. Coale. 1982. "Age Structure, Growth, Attrition, and Accession: A New Synthesis." *Population Index* 48:217-259.

$$N(a) = \int_0^a \left(A(x) - D(x)\right) e^{-\int_x^a r(y)dy} dx$$

and

$$N(a) = \int_a^\omega \left(D(x) + E(x)\right) e^{\int_a^x r(y)dy} dx,$$

where D(x) = the age-specific deaths
A(x) = the age-specific accessions
E(x) = the age-specific net migration
r = the growth rate

Given these estimates, I will then proceed to determine the composition of the population for proceed to add the age specific entrances and exits to obtain the composition for successive years. Additionally, the time spent on parole is probably relatively short given stock-flow (ratio of stock parole population to number or parole population released in a calendar year) estimates. In 1980, this ratio was 1.85 years; by 1990 it was 1.83 and in the year 2000 this estimate was 1.51.

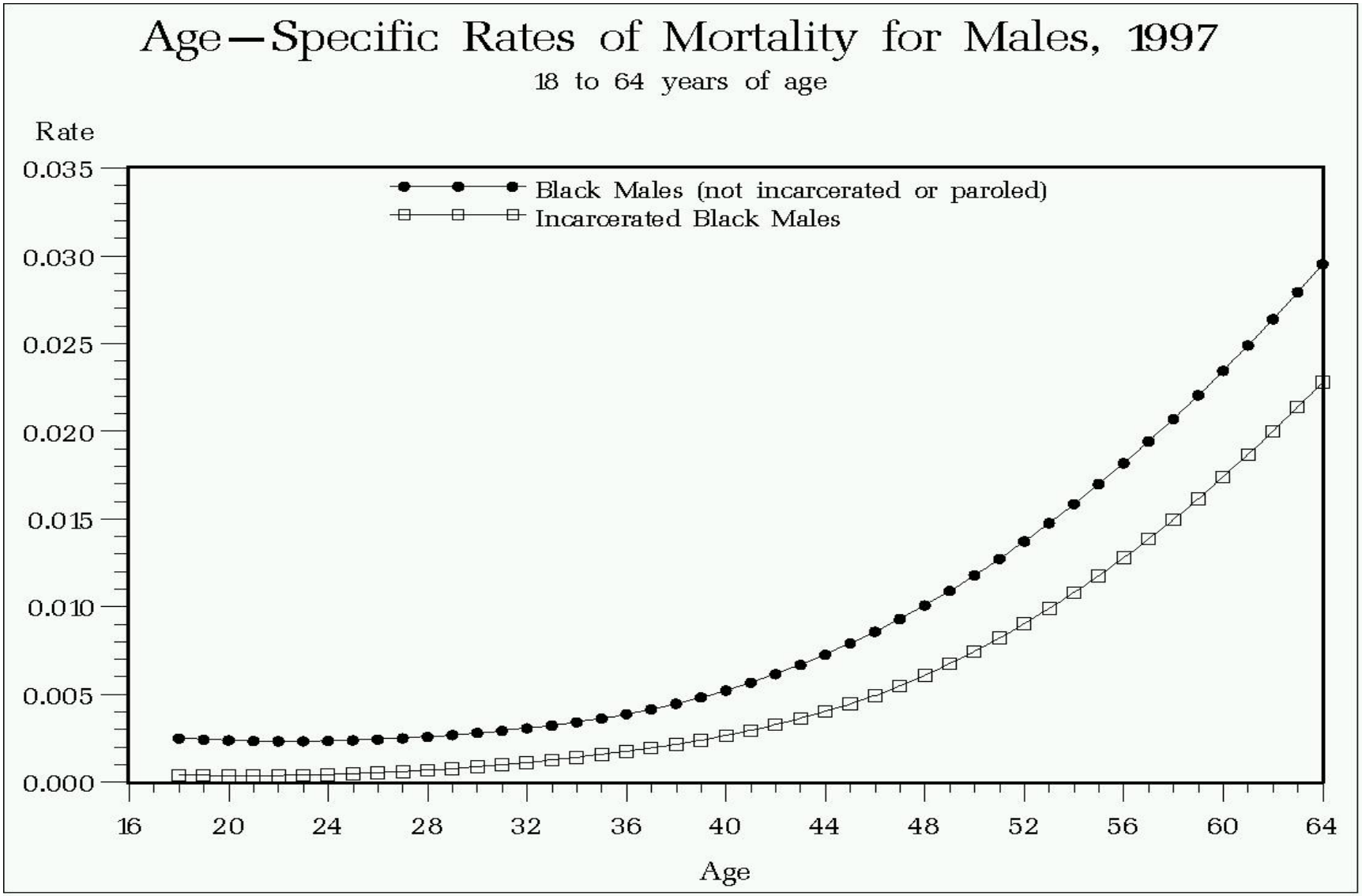
While national information is available for the age distribution, regional information is of interest for the comparison of mortality rates. The same procedure using the Preston and Coale's equations will be used to determine the age specific distributions of the regions. In each of these equations, I will make the assumption that r(x) = r for all x. Once the age distribution is known, it is possible to estimate the age-specific mortality rates and assess the variability across the regions. Additionally, I plan to examine the difference between person residing in poor versus rich states for both the incarcerated and parole populations, where the indicator of poor is the poverty rate[4]. Lastly, I estimate the mortality for persons whose main offense was a violent offense versus those whose was a non-violent offense in the paroled population.

The rates for the United States overall merely use the total deaths and the total population in the country, stratified by age. Mortality rates for the incarcerated population as a uses the NACC in combination with the NCRP to project the population forward to the survey year of interest. Recall, both the NACC and the NCRP provide state-specific information. Thus, the purpose of this step is to have the population of the states represented at the time of the survey. I then make the assumption that the national-level age distribution resembles that of the conglomerate of states available, thus having the age-distribution for the states for which I have death information.

PRELIMINARY RESULTS AND EXPECTED FINDINGS

My findings are proving to be quite significant. For example, one preliminary finding shown in the graph below indicates that African American men in prison have lower mortality levels than those not in prisons. I expect to find the same result for 1986 and 1991. I also expect each of the other hypotheses stated above will also be correct. Additionally, I expect mortality levels for paroled persons to be higher than mortality levels in both the general and prison population. The parole population is a select group – one that has the experience of prison and also the background that led to imprisonment. I expect that the selectivity of the population in combination with the absence of the protective (in some cases) barrier of prison will result in greater than mortality than the general population and the prison population.

[4] The states are divided into two groups based on whether their poverty level is lower or higher than the national level of poverty.


Age—Specific Rates of Mortality for Males, 1997
18 to 64 years of age
Rate
0.035
0.030
0.025
0.020
0.015
0.010
0.005
0.000
Black Males (not incarcerated or paroled)
Incarcerated Black Males
16
20
24
28
32
36
40
44
48
52
56
60
64
Age