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Unemployment and Imprisonment

Matthew G. Yeager

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RESEARCH NOTE

UNEMPLOYMENT AND IMPRISONMENT

MATTHEW G. YEAGER*

In recent congressional testimony, Professor M. Harvey Brenner referred to a number of studies which attempted to gauge the relationship between prison admissions and the economy.[1] Specifically, between 1967 and 1974, Cox and Carr observed that the Georgia prison population fluctuated with changes in the unemployment rate.[2] Similarly, Brenner and Jankovic found that admissions to state prisons correlated positively with the unemployment rate.[3] Indeed, Brenner testified that for every 1 percent increase in the unemployment rate, state prison admissions rose by 3,340 inmates, even after controlling for the effects of time, the percent of males in the population, per capita income, and inflation. However, Brenner and other researchers have failed to control for sentencing practices which could explain the variation in prison admissions. This note examines whether sentencing practices, rather than unemployment, explain these fluctuations in prison population.

In an effort to test the "sentencing" thesis, this note replicated an internal staff study by Colin Frank, a former employee of the Bureau of Prisons.[4] Frank's study indicated that the quarterly unemployment rate of males age twenty and over explained 59 percent of the variation in the federal

prison population sentenced between 1952 and 1974.[5] However, Frank's study failed to introduce sentencing variables into the analysis.

Data from the Administrative Office of the United States Courts were obtained for fiscal years 1952 through 1978. This data reflected the total number of defendants indicted and convicted, including their average prison sentence.[6] Data on the total sentenced prison population were secured from annual reports of the Bureau of Prisons.[7] Figures for the civilian noninstitutionalized population residing in the United States were obtained from the Bureau of the Census, and unemployment data were obtained from unpublished, seasonally-adjusted tabs maintained by the Bureau of Labor Statistics, covering the period 1951 to 1977.

Without considering sentencing factors, the first quarter unemployment rate of males age twenty and older explained 70 percent of the variation (r = +.837, p < .001) in the prison population sentenced during those years. The prison population data lagged fifteen months behind the unemployment figures, but the results were similar with twelve and nine month lags. For every 1 percent increase in male unemployment, there was a corresponding increase of approximately 1,544 sentenced federal inmates.

When unemployment was correlated with the rate of imprisonment per 100,000 civilian population, the result was positive (r = +.591, p < .01), but auto-correlated.[8] When serial or auto correla-

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* Adjunct Professor of Criminology, School of Justice, American University; M.A., School of Criminal Justice, S.U.N.Y. at Albany; B.A., Berkeley School of Criminology, University of California at Berkeley.

[1] *Unemployment and Crime: Hearings Before the Subcomm. on Crime of the House Comm. on the Judiciary*, 95th Cong., 1st & 2d Sess. 20 (1977-1978) (testimony of M. Harvey Brenner).

[2] *Id.* at 24 (citing G. Cox & T. Carr, Unemployment and Prison Population Trends in Georgia: 1967-1974 (March 5, 1975) (report prepared for the Atlanta, Ga. Dep't of Corrections/Offender Rehabilitation)).

[3] *See* Jankovic, *Labor Market and Imprisonment*, 8 CRIME & SOC. JUST. 17 (1977); M. Harvey Brenner, Time Series Analysis of the Relationship between Selected Economic and Social Indicators, Vols. I & II (1971) (unpublished manuscript available from the National Technical Information Service, Springfield, Va.).

[4] C. Frank, Correlation of Unemployment and Federal Prison Population (March 1975) (unpublished manuscript).

[5] The prison population data lagged 15 months behind the unemployment data.

[6] Data were obtained from the annual reports of the Director of the Administrative Office of the United States Courts. The term "average prison sentence" refers to the mean sentence to prison, in months, among all criminal defendants, calculated from the maximum term of an indeterminate or determinate sentence.

[7] The term "sentenced prison population" refers to the number of incarcerated persons currently serving a federal sentence; it does not include detainees and those incarcerated for observation or diagnostic purposes.

[8] Auto or serial correlation refers to the existence of correlation among the individual observations in a time series such that if the incarceration rate is increasing in
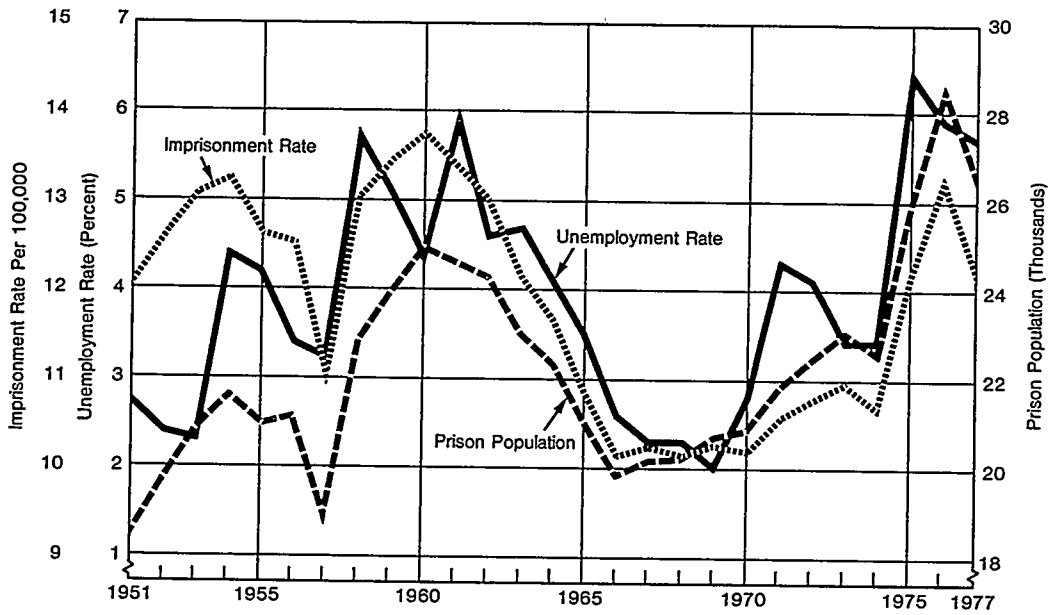
FIGURE 1

First Quarter Male Unemployment Rate (Seasonally Adjusted), Age 20+, 1951–1977, Correlated with Federal Sentenced Prison Population (15 month lag), Rated and Unrated

TABLE 1

DEPENDENT VARIABLE: SENTENCED PRISONERS IN U.S. INSTITUTIONS END FY

INDEPENDENT VARIABLES	MULTIPLE R	R SQUARE	RSQ CHANGE	B	F	BETA
Average Prison Sentence-months	0.48874	0.23886	0.23886	119.6195	5.435	0.45108
Conviction Rate	0.51577	0.26602	0.02716	63.8492	0.633	0.15141
Unemployment Rate Age 20 and over, 1st Quarter	0.89554	0.80199	0.53597	1395.467	62.258	0.75690
(Constant)				7501.009		

D.W. = 1.75006   F = 31.0526   p <.001

TABLE 2

DEPENDENT VARIABLE: IMPRISONMENT RATE PER 1,000 CIVILIAN POPULATION

INDEPENDENT VARIABLES	MULTIPLE R	R SQUARE	RSQ CHANGE	B	F	BETA
Conviction Rate	0.52013	0.27053	0.27053	0.4871287D-01	1.165	0.22450
Average Prison Sent-months	0.52450	0.27510	0.00457	-0.6175489D-01	4.583	-0.45258
Unemployment Rate age 20 & over, 1st quarter	0.87386	0.76362	0.48853	.6855187	47.535	0.72262
(constant)				7.149280		

D.W. = 1.57844   F = 24.76747   p <.001

tion is present in lagged data, it is impossible to tell whether unemployment is causally related to the rate of imprisonment.

Table 1 presents the results of a more sophisticated analysis of the relationship between unem-

ployment and prison population (unrated). The analysis controlled for conviction rate and average prison sentence. The results showed that the unemployment rate alone explains 54 percent of the variation in the prison population sentenced during the years from 1952 through 1978. After considering sentencing practices, a 1 percent increase in male unemployment results in 1,395 additional

1967, it will probably increase in 1968, and so on. Instead of being independent of one another, each yearly observation influences the other.

	Imprisonment Rate	Conviction Rate	Average Prison Sentence	Prison Population	Unemployment Rate	Mean	Std. Deviation
Imprisonment Rate	——	+.52013	-.48626	+.50463	+.59061	11.8579	1.2257
Conviction Rate			-.87108	-.34479	-.13645	83.5541	5.6486
Ave. prison Sentence				+.48874	+.22401	33.1593	8.9823
Prison Population					+.83728	22270.5	2382.01
Unemployment Rate					——	3.9185	1.2920

Correlation Matrix

prisoners in federal penal institutions.[9] Although the conviction rate had little effect, the average prison sentence correlated positively with an increase in the federal prison population. For each month increase in the average yearly prison sentence for all federal defendants sentenced to jail, there was an accompanying rise of 120 inmates.

The same equation was used to predict the rate of imprisonment per 100,000 civilian population. Only the unemployment rate and the average prison sentence were statistically significant predictors of imprisonment.[10] Using rated imprisonment data, a 1 percent increase in the unemployment figure corresponded to an increase of about 1,483 prisoners, based on fiscal year 1977 data.

The results of our analysis confirm several other studies which indicate that unemployment is a strong predictor of prison populations. This particular study adds the finding that sentencing practices make little difference in this basic finding. In a similar vein, David Greenberg recently completed a report which found extremely high correlations (r = +.91) between per capita prison

admissions and the unemployment rate in Canada, a finding which was unaffected by the conviction rate.[11]

A recent longitudinal survey conducted by researchers at the University of Michigan, indicated that approximately one-quarter of the total population were living below the poverty level during at least one year of the six-year period, 1967–1972, surveyed.[12] Data from the Census Bureau and the Washington, D.C., Office of Criminal Justice Plans and Analysis suggest that the unemployment rate for prisoners is about three times that for non-institutionalized males and that most incarcerated populations are comprised of workers in manual and service trades.[13]

From a theoretical point of view, it appears that imprisonment functions, at least in part, to contain and regulate the marginal or secondary labor force composed of the unemployed and subemployed.[14]

[9] Caution should be exercised in using unstandardized regression coefficients for prediction purposes. Although the regression equation may explain a considerable amount of variation, it still may not successfully predict year-to-year changes in the dependent variable. See L. KLEIN, A TEXTBOOK OF ECONOMETRICS 275–79 (2d ed. 1974).

[10] Other variables considered were a linear time effect and average time served in prison among first releases. The variable reflecting average time served was statistically insignificant in both equations. Because the linear time variable was so highly correlated with the other two independent variables and added no additional variance explained, it was dropped from the equation.

[11] D. Greenberg, Homeostatic and Other Punishment Processes (January 1977) (unpublished manuscript available from author at New York University).

[12] See OFFICE OF ECONOMIC OPPORTUNITY, DEP'T OF HEALTH, EDUCATION, AND WELFARE, THE CHANGING ECONOMIC STATUS OF 5,000 AMERICAN FAMILIES: HIGHLIGHTS FROM THE PANEL STUDY OF INCOME DYNAMICS (1974).

[13] NATIONAL CRIMINAL JUSTICE INFORMATION AND STATISTICS SERVICE, U.S. DEP'T OF JUSTICE, SURVEY OF STATE CORRECTIONAL FACILITIES, 1974 ADVANCE REPORT (1976) (report prepared by the United States Census Bureau); OFFICE OF CRIMINAL JUSTICE PLANS AND ANALYSIS, THE PRETRIAL OFFENDER IN THE DISTRICT OF COLUMBIA: A REPORT ON THE CHARACTERISTICS AND PROCESSING OF 1975 DEFENDANTS (1976).

[14] Compare G. RUSCHE & O. KIRCHHEIMER, PUNISHMENT AND SOCIAL STRUCTURE (1968) with R. CLOWARD & F. FOX PIVEN, REGULATING THE POOR: THE FUNCTIONS OF PUBLIC WELFARE (1977).