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FORUM

The BCS FORUM series publicizes the findings of projects sponsored by the Attorney General's Criminal Justice Targeted Research Program. Through this fellowship program, the Department of Justice funds private academicians to undertake research on policy issues of current interest.

EMPLOYMENT AND CRIME

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CRIMINAL JUSTICE TARGETED RESEARCH PROGRAM

In an effort to increase the comprehensiveness and quality of criminal justice research in California, the Attorney General developed the Criminal Justice Targeted Research Program within the Bureau of Criminal Statistics (BCS).

The key goals of this effort are to:

● Make better use of the criminal justice data collected and maintained by BCS;

● Forge stronger ties between state government and the research community; and

● Contribute to sound policy development in the field of criminal justice.

The Criminal Justice Targeted Research Program is a unique effort to achieve these goals. Each year, the Attorney General selects several researchers to undertake projects of their own design. Researchers work closely with BCS staff, effectively blending their special expertise in research design and methodology with the technical expertise found in BCS.

This **FORUM** is a brief summary of the findings of a major research project conducted at BCS in 1987 and 1988. This report is entitled "Work and Crime: Evidence from New Data." It can be obtained free of charge from the Bureau of Criminal Statistics and Special Services, P. O. Box 903427, Sacramento, CA 94203-4270.

Jeffrey Grogger received his Ph.D. in Economics from the University of California, San Diego. He was a research fellow from 1986 to 1988. In addition to this work, Mr. Grogger also conducted research on capital punishment and labor market influence on crime. Mr. Grogger is currently an Assistant Professor of Economics at the University of California, Santa Barbara.

Employment and Crime

by Jeffrey Grogger

The love of money is the root of all evil.

I Timothy 6:10

The lack of money is the root of all evil.

George Bernard Shaw

This well-known Biblical adage and its modern reinterpretation express a long and widely held belief that monetary ailments underlie many social ills, and most directly, perhaps, that of crime. Yet in spite of its commonsense appeal, the hypothesis that unemployment and low earnings lead to increased crime has not been substantiated empirically in an unequivocal way (see Freeman, 1983).

The failure of social science research to corroborate such a basic premise is troubling. Many theories of behavior found in sociology, economics, and psychology predict that low employment or earnings should lead persons to increased participation in crime. Beyond theory, however, the absence of a verifiable relationship has serious policy implications. For example, job-training programs may not be helpful as a tool to reduce the costs of crime to society.

Perhaps because of its compelling logic, neither policy makers nor social science researchers have been content to conclude that work and crime are truly unrelated. Rather, deficiencies in both measurement and analysis have been blamed as the real reason for the ambiguous research findings. Many job-training programs undertaken in the 1970s have been faulted for poor or nonexistent evaluation provisions; academic research has been criticized for relying on inadequate data.

One of the main problems with previous research on the work/crime relationship has been excessive reliance on aggregate data, such as published crime rates and unemployment rates. While useful in indicating general trends in crime or employment, this research has been less useful in establishing a work/crime relationship, likely due to the confounding effect of aggregation over heterogeneous geographical areas such as cities and states.

Some investigators have pursued research at the level of the individual, using self-reported information on employment and earnings. Such studies have focused mainly on the behavior of persons released from prison. These individuals are likely to respond to economic or criminal justice incentives in a manner very different from a typical member of the community, and their experiences are of little help in understanding whether poor labor market performance is an inducement to crime for broader segments of society.

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Ideally, research would be based on a random sample of individuals from the general population. With this information, researchers and policy makers could study the factors that contribute to an individual's involvement in or avoidance of crime, and to the effectiveness of various legal and extra-legal policies to reduce criminal activity.

This ideal, however, is unlikely to be realized in the foreseeable future, because prospective subjects are concerned with the confidentiality of their responses and have little incentive to give truthful answers to questions about past criminal activities. Moreover, the cost of such a survey would be prohibitive.

An alternative, however, is to merge official arrest records with official earnings records as a basis for research. Although information on persons without arrest records cannot be gathered in this way, the use of merged data has other advantages which partially offset this loss.

First, one can generate high-quality data on large numbers of arrestees. Individuals whose criminal records range from one misdemeanor arrest to several felony convictions are representative of a broad range of behavior much more so than samples of parolees from state institutions. Next, official records can be merged in such a way as to guarantee the confidentiality of the subjects. Finally, the merging of records is relatively inexpensive and much less costly than conducting a general population survey.

In this FORUM, I report on the results of research based on such merged data. The

following section describes the two main data sources and the procedure used to merge them. Then, I discuss the success in matching the records and present the main findings of the research. I conclude with a discussion of the findings and their implications for policy.

DATA SOURCES AND THE MERGE PROCEDURE

In 1983, the California Bureau of Criminal Statistics (BCS) created the Adult Criminal Justice Statistical System (ACJSS). The ACJSS data base is a longitudinal file which allows one to track the criminal careers of large numbers of offenders over long periods of time.

The ACJSS data base consists of the criminal histories of more than two million persons whose first arrests as adults in California occurred after 1972. An individual criminal history record is initiated when a fingerprint card is submitted to the Department of Justice by a law enforcement agency following an arrest; these records contain information on charges as well as dispositions. Because the arrest data are based on fingerprint cards, the general quality of these data is high, particularly for felony arrests.

As with other offender-based systems, information on dispositions is less complete. Approximately 65 percent of the 4.6 million misdemeanor and felony arrest records in the file include disposition information.

For the current study, random samples of men born in 1956, 1958, 1960, and 1962 were taken from the ACJSS. Five percent samples were taken from the

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three oldest cohorts; the youngest was sampled at ten percent. The 1956 cohort is the oldest age group whose entire adult arrest records are contained on the ACJSS. The 1962 cohort was chosen because, as discussed below, it is the oldest group whose entire adult arrest and earnings records are available on the ACJSS and the California Employment Development Department's (EDD) Wage History File.

EDD's Wage History and Base Wage Files contain information on individuals' employment and earnings for 1980 through 1986. Each quarter, all employers in the state who are subject to unemployment insurance taxation are required to report the earnings of all individuals on their payrolls at any time during that quarter. These data are then recorded on EDD's files, listing the Social Security Number (SSN), name, and earnings of each employee in covered establishments. The file excludes only military personnel, federal workers, and self-employed individuals.

One limitation of these data is the exclusion of any cash or other "under-the-table" earnings, which may be a common form of income for many in our sample. Within our framework, there is little that can be done to rectify this problem; this limitation of the data must be kept in mind in interpreting the analytical findings reported below.

To merge the records, EDD's Wage Files were searched by name and SSN for each arrest record from the random sample from the ACJSS. To ensure the greatest possible accuracy, only records that matched both on SSN and the first four letters of the last name were retained in the final analysis sample.

It is important to stress that careful steps were taken to ensure the anonymity and confidentiality of the individuals whose records were chosen for merger. First, the actual merging operation was performed by EDD staff. Before delivering the merged data to BCS, all personal identifiers were stripped from the records. Finally, EDD destroyed its copies of the original and merged files. At no point in the process did any personnel at the Department of Justice have access to merged records that included personal identifiers.

RESULTS OF THE STUDY

Matching Success

Using the procedure described above, we were able to match a little more than 60 percent of the records in the original random sample from the ACJSS to earnings records from EDD's files. Half of the non-matches were due to the lack of SSNs on the ACJSS. For the others, no earning records were found in EDD's files.

As a result of the non-matches, the composition of the merged analysis sample is different from that of the original random sample of arrestees. Specifically, the merged analysis file contains fewer Hispanics and fewer one-time arrestees than the original sample. Whether this difference affects any of the substantive results reported below is unknown. What can be said is that the merged analysis file includes information on a very broad class of arrestees and is much more representative of the general population of offenders than the samples of parolees typically studied in the past.

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Figure 1
EARNINGS AND ARRESTS, 1980-1986
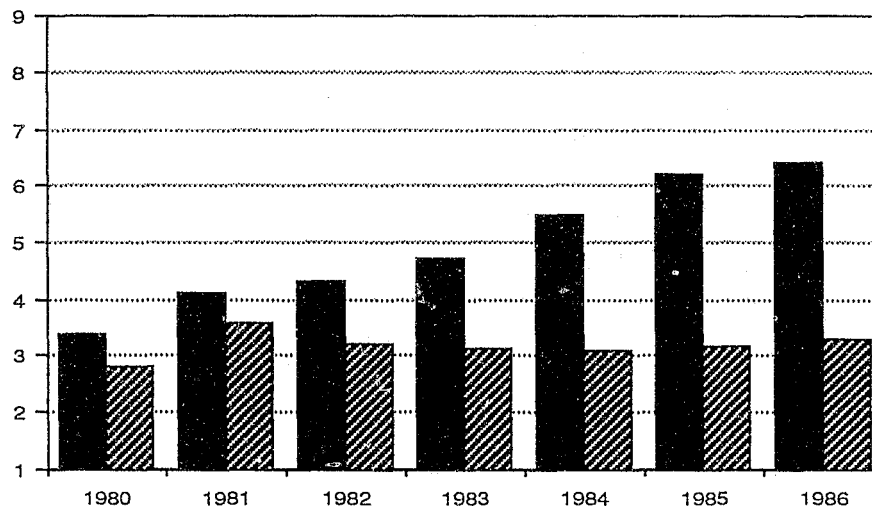
Source: Data Table A.

| ■ Median Earnings, 1980 dollars | Vertical axis represents hundreds for arrests |
| ▨ Arrests per 1,000 individuals | and thousands for earnings. |

Findings

The median earnings of our sample members in 1986 were $6,400. (All earnings measures are expressed in 1980 dollars.) In contrast, 1979 median earnings of all California males between 24-29 were more than $14,000 as reported in the 1980 Census.[1]

The typical member of our arrestee sample clearly earns less on the conventional labor market than the typical young male in the general population.

This is not to say, however, that such low earnings are characteristic of all sample members. Fully one-fourth of the individuals in the sample earned $12,900 in 1986, while the top five percent of earners made more than $24,000. While the average earnings of the sample

members are quite low relative to the general population, it is true that many sampled individuals exhibit earnings characteristic of typical non-offenders. The sample is thus seen to include a broad range of employment and earnings.

Figure 1 charts the median earnings (in constant 1980 dollars) and average number of arrests per 1,000 sample members for 1980 to 1986. It depicts graphically the fundamental association found in the data: higher levels of earnings are associated with fewer arrests. It must be noted that no attempt has been made to account for time spent in jail or prison. Some of the observed negative association therefore undoubtedly reflects the fact that individuals behind bars do not make much money. In other analyses,

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however, I have taken considerable effort to account for time incarcerated, and found similar strong inverse associations. The interested reader is referred to Grogger (1988) for more information.

Figure 2 presents median earnings and average arrests by birth cohort, allowing for a more detailed examination. We see that, within each group, earnings increase over time, while arrests decrease. In addition, at any point in time, the cohort with the greatest earnings generally has the fewest arrests, while cohorts with lower earnings generally have more arrests. Whether viewed over time or in cross-section, there is a negative association between earnings and arrests.

Figures 1 and 2 show a strong connection between earnings and arrests. However, a more precise quantitative statement about the strength of the relationship can be made using correlation analysis. Correlation analysis essentially compares the level of one variable of interest, such as earnings, with another, such as arrests, for each individual in the sample. It then summarizes this relationship with a single number, known as the correlation coefficient.

The correlation coefficient takes on values between -1 and 1. A value of 1 indicates a perfect positive correlation, or direct relationship, while a value of -1 indicates an exact negative, or inverse, relationship. Intermediate values indicate weaker associations: the higher the absolute value of the correlation coefficient, the stronger the connection.

Figure 2
EARNINGS AND ARRESTS, 1980-1986
By Year of Birth
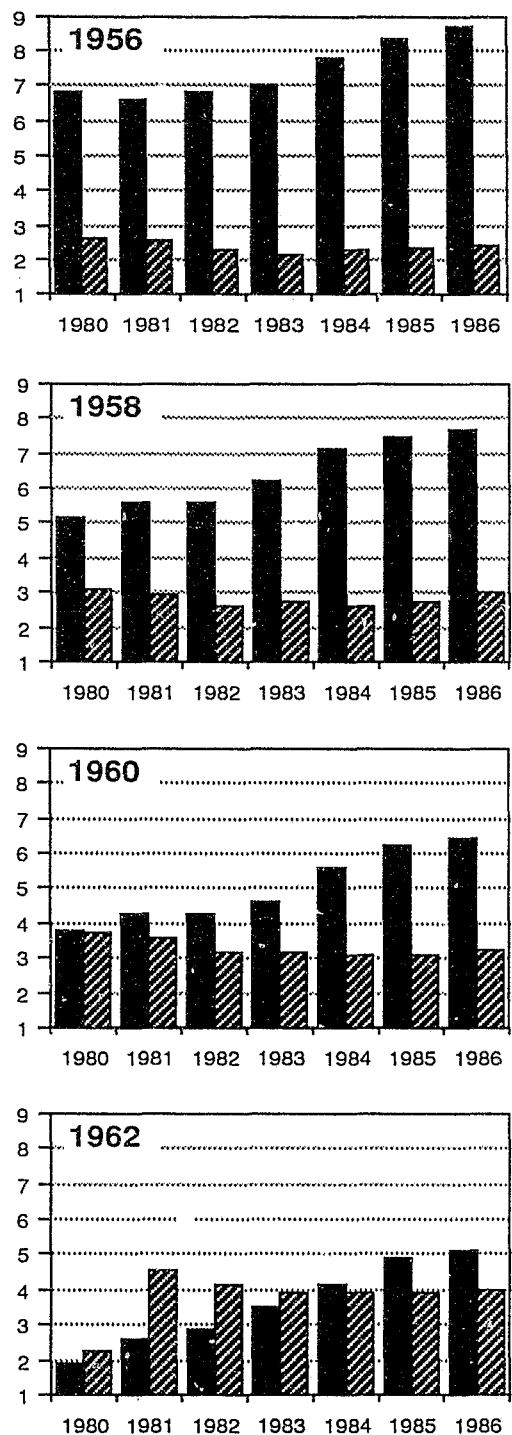
Source: Data Table B.

■ Median Earnings, 1980 dollars
▨ Arrests per 1,000 individuals

Vertical axis represents hundreds for arrests and thousands for earnings.

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TABLE 1
CORRELATIONS BETWEEN 1986 EARNINGS AND ARRESTS
By Birth Cohort

	1956 Cohort Arrests	1958 Cohort Arrests
Earnings	-.186	-.222

	1960 Cohort Arrests	1962 Cohort Arrests
Earnings	-.209	-.203

Note: All coefficients significant at .001

Table 1 presents the correlation coefficients between earnings and arrests in 1986 for each of the four birth cohorts. The numbers are all negative, indicating an inverse relationship as seen above, and are, in general, quite large for such individual-level data.

In addition to providing a quantitative measure of the association between earnings and arrests, correlation analysis also allows us to assess the probability that the association observed is merely a chance outcome. All of the correlation coefficients presented in Table 1 are statistically significant at the level of one-tenth of one percent (0.001).

This means that if, in fact, there were no relationship between earnings and arrests, one would expect to observe correlation coefficients as large as those in Table 1 only in one of every one thousand independent samples drawn from the entire population of offenders. The likelihood, then, that

in fact there is no true relationship, in spite of its apparent strength from the correlation analysis, is quite small indeed.[2]

CONCLUSIONS AND POLICY IMPLICATIONS

From a research perspective, the findings of the study are evident: falling earnings are clearly associated with increases in arrests. The support for this conclusion is compelling in terms of its strength and statistical significance. These results are based on a large set of high-quality data created by anonymously merging two sources of official records. Given the contrast of these findings to the equivocal conclusions of previous researchers, the advantages of this approach cannot be exaggerated.

The reader must be cautioned, however, that no correlation analysis, regardless of the strength of its findings, can be said to imply causation.

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These findings are consistent with three underlying causal structures: first, that low employment and earnings lead to involvement in crime; second, that involvement in crime leads to low employment and earnings; and third, that those who adopt criminal activities as their principal means of support simply avoid employment in the types of jobs covered under the unemployment insurance system. Discerning which of these competing explanations underlies the reported findings becomes a crucial task for criminal justice research, since the policy implications vary greatly depending on the true underlying cause of the observed associations.

A finding that unemployment causes crime would call for largely extra-legal employment policies designed to improve overall employment and earnings, particularly of groups most likely to turn to crime for support during periods of joblessness. A finding that crime both causes and is caused by poor labor market performance, on the other hand, would suggest that efforts to improve the employment prospects of arrestees and parolees through programs such as intensive supervision probation (see, e.g., Petersilia, 1987) and transitional financial support for parolees who demonstrate their willingness to engage in productive work (see, e.g., ,

Berk and Rauma, 1983) would be fruitful. Finally, if it were found that the reported results stemmed mainly from career criminals predisposed against engaging in any normal employment activities, then efforts to identify and incapacitate those individuals might provide society's best protection against their criminal endeavors.

In fact, however, it is unlikely that any single causal structure is responsible for the findings reported above. It is more likely that elements of each are present, and subsumed in the aggregate correlation measures. As it is improbable that any single behavioral structure underlies the reported findings, so too is it unlikely that any single policy prescription would represent the best use of a fixed criminal justice budget in reducing crime. The task of future research then should be to characterize the types of offenders most likely to respond favorably to various legal and extra-legal policies, and thereby to determine the most cost-effective mix of policy options to be applied in combating criminal activity.

It is hoped that the data-merging techniques demonstrated here will serve as a model and a point of departure for researchers wishing to undertake these efforts in the future.

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DATA TABLES

DATA TABLE A
EARNINGS AND ARRESTS, 1980-1986

	Median earnings (1980 dollars)	Arrests per 1,000 individuals
1980	$3,400	282
1981	4,100	359
1982	4,300	323
1983	4,700	313
1984	5,500	312
1985	6,200	318
1986	6,400	330
N = 25,308		

DATA TABLE B
EARNINGS AND ARRESTS, 1980-1986
By Birth Cohort

	1956 Cohort				1958 Cohort		
	Age	Median earnings	Arrests per 1,000		Age	Median earnings	Arrests per 1,000
1980	24	$6,800	261		22	$5,200	307
1981	25	6,600	252		23	5,600	295
1982	26	6,800	227		24	5,600	261
1983	27	7,000	212		25	6,200	275
1984	28	7,800	224		26	7,100	263
1985	29	8,400	232		27	7,500	271
1986	30	8,700	239		28	7,700	299
	N = 5,065				N = 5,314		

	1960 Cohort				1962 Cohort		
	Age	Median earnings	Arrests per 1,000		Age	Median earnings	Arrests per 1,000
1980	20	$3,800	369		18	$1,900	228
1981	21	4,300	360		19	2,600	454
1982	22	4,300	317		20	2,900	415
1983	23	4,600	314		21	3,500	389
1984	24	5,600	311		22	4,100	389
1985	25	6,200	312		23	4,900	395
1986	26	6,400	322		24	5,100	401
	N = 5,626				N = 9,303		

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NOTES

1. These figures are not <u>exactly</u> comparable for two reasons. First, real earnings (that is, after accounting for inflation) generally increase over time. Next, census earnings estimates count all sources of earnings, while earnings of our sample members include only those covered by unemployment insurance. Nonetheless, the huge differences in earnings observed here could not possibly be explained entirely by these considerations.

2. The results presented here are merely representative of the findings from an extensive, concurrent study of these data (Grogger and Tillman, 1988). In that report, particular types of arrests are analyzed separately (such as felony arrests and arrests for property offenses). Conviction data are also analyzed, as are measures of unemployment as well as earnings. <u>All</u> criminal justice measures exhibited negative associations with <u>all</u> labor market measures. Further, this result held in aggregate, and when the data were disaggregated by birth cohort and by race/ethnicity. In short, the results are quite robust.

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