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Bridging Gaps in Police Crime Data

A Discussion Paper from the BJS Fellows Program

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on Uniform Crime Reporting Imputation
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**Federal Bureau of Investigation
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Summary

Crime in the United States (CIUS), published annually by the FBI, is a compilation of the Uniform Crime Reports (UCR) provided by over 18,000 policing jurisdictions. It represents one of the two primary sources of data about crime in the United States, the

National Crime Victimization Survey (NCVS) being the other. While the NCVS is a very reliable indicator of *national* trends in crime, it is based on a survey of under 50,000 households and thus cannot provide *local* information on crime, which is provided by the UCR and CIUS. [For a thorough understanding of the differences between the two statistical series, see Biderman and Lynch's (1991) *Understanding Crime Incidence Statistics: Why the UCR diverges from the NCS*.¹ A briefer explanation can be found in *The Nation's Two Crime Measures*, found at <http://www.ojp.usdoj.gov/bjs/abstract/ntmc.htm> and included annually in CIUS.]

Not only does CIUS provide local information about crime incidence, it also compiles arrest data from these jurisdictions; these data permit us to form a picture of who is committing crime (or at least, who is *arrested* for committing crime).

Reporting to the FBI remains for many jurisdictions a voluntary activity; although many States now mandate that agencies report crime and arrest data to them (which they then forward to the FBI), even in those States local agencies do not always comply.

¹The NCS, or National Crime Survey, was the predecessor to the NCVS.

Moreover, despite the efforts of the FBI to maintain their quality, there are many gaps in the data that make their use questionable. While this has had limited impact in the past, the fact that the UCR data have, for the first time, been used to allocate Federal funds brings issues about data quality to center stage.

In addition, the FBI is moving to implement an improved crime and arrest reporting system, the National Incident-Based Reporting System (NIBRS), to replace the summary UCR program. It is hoped that the study of deficiencies in UCR data will be of use in planning toward the full implementation of NIBRS.

This report describes the history of the UCR system and the data problems that it deals with in reporting about crime, arrests, and homicide. It describes the procedures used by the FBI to fill in gaps in the data, when they exist, and makes suggestions about how they might be improved.

A note of thanks from Michael Maltz

I began work on this project because, although I had been using the UCR for many years, I had never understood all of its intricacies and felt somewhat embarrassed to ask simple questions about why certain procedures were used, because obviously everyone else knew. It turned out, however, that most people seemed to be as much in the dark as I was, perhaps about different aspects of the UCR, and during this project we began to share our knowledge, each of us having an understanding of different aspects of the data collection and analysis process. This report is, then, more of a collaboration than a single-authored effort, a kind of "open source" presentation of our collective knowledge.

The information contained herein is based on a 2-day meeting held over 2 years ago; analyses of UCR data conducted since then; and conversations, letters, faxes, and emails between me and a number of colleagues. In particular, I wish to acknowledge the comments and advice of the following:

- From BJS — Jan Chaiken, Larry Greenfeld, Charles Kindermann, Pat Langan, Sue Lindgren, Don Manson, Mona Rantala, Steve Smith, Paul White, and Marianne Zawitz

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- From the research community — Dan Bibel, Becky Block, Roland Chilton, Chris Dunn, Bob Flewelling, Jamie Fox, Jim Lynch, Mike Maxfield, and Howard Snyder.

In addition, I wish to thank the UCR program personnel from the 50 States with whom my research assistants (Leanne Brecklin, University of Illinois at Chicago; Chris Kenaszchuk, University of Maryland; and Todd Minton, BJS) and I corresponded and spoke. I received cooperation from virtually every State in putting together this report; I hope that the end result is of use to them and to others who deal with crime statistics.

This report was written while I was a Visiting Fellow at the Bureau of Justice Statistics, and completed while I was on sabbatical from the University of Illinois at Chicago. While I greatly appreciate the help I received from BJS, FBI, and State officials, they should not be held responsible for any errors in this report, and the opinions, conclusions, and recommendations expressed herein are my own and should not be construed as the policy of any of these organizations.

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I. Introduction

The Uniform Crime Reporting Program (**UCR**)¹ of the Federal Bureau of Investigation (**FBI**) has been collecting crime and arrest data from police departments throughout the United States since 1930. The data are published in the annual report, *Crime in the United States (CIUS)*, and represent one of the more widely used sources of longitudinal data in the social sciences. The UCR is based on monthly summary reports of crimes known to the police and arrests made by the police, that are provided to the FBI by more than 18,000 police agencies in the United States and its territories.²

The FBI office that deals with the UCR is the Program Support Section (**PSS**), a section of the Criminal Justice Information Services (**CJIS**) Division. Five of the eight units within PSS are concerned with various aspects of CIUS:

- The Statistical Unit collects, checks, and manages the data coming in from the police agencies.
- The Communications Unit is involved in publications and data dissemination.
- The Education and Training Services provides training to local agencies in UCR data collection procedures.
- The Crime Analysis Research and Development analyzes data and develops specifications for new methods of presenting the data.
- The CJIS Audit Unit performs quality assurance reviews to maintain the quality of the UCR.

The UCR includes a Crime Index, a count of certain specific crimes occurring over the past year in each jurisdiction. These are called "Index crimes," and, listed in order of their presumptive seriousness, are murder

and nonnegligent manslaughter, forcible rape, robbery, aggravated assault, burglary, larceny-theft, and motor vehicle theft.

Arson was added to the Crime Index in 1979 although it is not as likely as the other Index crimes to be reported to the police, because arsons are often categorized as "fires of suspicious origin." Except for arson, these particular crimes were chosen because they were frequent, generally serious in nature, and most likely to be reported to the police; victims, their relatives, and/or bystanders who witness the incident are likely to know that incidents of those types are criminal in nature and are likely to report them.

Although the UCR has some limitations (indeed, the aim of this report is to address some of them), even these limitations provide important information. For example, incomplete citizen reporting to the police of certain types of crimes has been used as an indicator of a number of police-related factors: how the relationship between offender and victim affects citizen reporting of crime; the extent to which citizens trust the police; and the effect of police policies and problems on reporting behavior. Yet the public is generally unaware that the UCR system is essentially a *voluntary* system; there is no federal legislation that requires states or local jurisdictions to report their crime data to the FBI.

The voluntary nature of the UCR, of course, affects the accuracy and completeness of the data. Although the FBI devotes a great deal of attention to the quality of the data it publishes in CIUS, it cannot mandate agencies to provide data on time (or at all). As a consequence, the FBI must deal with problems of missing or late data, and has developed a mechanism to account for these gaps: it *imputes* (or estimates) data where gaps exist, which limits the accuracy of the crime statistics published in CIUS.

¹The first mention of an acronym in this report is printed in **bold**. Also see *Glossary*, page 72.

²Police agencies also report on other topics to the FBI, including hate crimes, personnel statistics, and law enforcement officers killed and assaulted. These topics are not covered in this report.

Why We Need to Look at the UCR

Despite these problems with the data, adjustments for missing data have not been of major consequence in the past, since the primary purpose of the data was to present national and State trends — and the adjustments were adequate for this purpose. Researchers, police administrators, and some journalists are aware of the limitations of the UCR, but it mattered little to others outside the field. However, in the recent past four changes were made in the environment in which the UCR data are being employed:

- UCR data are being used to allocate Federal funds.
- The data are now instantly accessible on the Internet.
- Because of the greater accessibility of the data, researchers are increasingly analyzing UCR statistics at sub-national levels, but the results of their analyses may be suspect because of the way missing data are handled.
- A new reporting system (the National Incident-Based Reporting System, or **NIBRS**) now being implemented to augment — and ultimately replace — the UCR, will increase the amount of data collected on each crime.

Thus, the collection, analysis, and publication of crime data are now occurring in a new environment, due to changes in legislation, changes in the ease of access by citizens and researchers to the data, and changes in crime reporting. This means that the FBI's imputation procedures, which were adequate for handling many of the weaknesses in the current data collection system, may have to be revised.

Toward this end, a Workshop on UCR Imputation Procedures was held in Washington, DC, April 24-25, 1997, and attended by key personnel from the FBI and

the Bureau of Justice Statistics (**BJS**), as well as by researchers familiar with UCR data and their problems. The list of attendees is given in *Appendix A* of the full report. Just prior to the workshop the FBI had moved the Program Support Section to Clarksburg, West Virginia. The move resulted in a turnover of personnel and equipment. The workshop thus came at an opportune time for the FBI, which recognizes the need to update the procedures it has been using for 40 years — when the UCR had its last major revision (FBI, 1958).

The workshop provided an opportunity for statisticians and researchers from both of these Federal agencies and from the user community to discuss ways of improving UCR data collection and estimation procedures. The goal of the workshop was to recommend new ways to ensure that the American public is provided with the best possible police-collected information related to crime and criminality, and to move toward that end in the most expeditious and feasible way possible. This report is based on the findings and discussions from that workshop.

Issues relating to standard UCR data (i.e., crime counts, arrests) were not the only topics addressed at the workshop. Attention was also devoted to the Supplementary Homicide Reports (**SHR**), forms filled out by police departments that provide a more detailed description of each homicide than just the raw statistics of number of homicides. The workshop explored how these data could be made more useful, and this report discusses those findings as well.

Issues related to Federal crime data are not included in this report. Thus, the accuracy or completeness of the statistics of crimes committed on Indian reservations, military installations, and national parks are for the most part excluded.

This report also includes information gathered from State criminal justice agency personnel and data analyses subsequent to the workshop.

The Information-Gathering Process

The information contained in this report has come from a variety of sources. Much of it is undocumented, and falls more in the category of "lore" than "information." The voluntary nature of the UCR system means that different standards and procedures have been used in different States despite the name given to the data system – the Uniform Crime Reports are far from uniform. Some of the material included herein is based on informal conversations with FBI and BJS personnel and State officials who use or collect the data, and some of their statements about the UCR (or my interpretations of what they meant) may be in error. Although I have tried to verify all statements, some errors may have slipped through. Should a reader find mistakes in this report, please notify me (mikem@uic.edu), and corrections will be added to an errata sheet that will be posted on the BJS website.

It seems that every decade or so I look into the intricacies of crime data (Maltz, [1972] 1999; 1984: 141) and find the following caution about official statistics from Josiah Stamp (1929: 258) applicable:

The individual source of the statistics may easily be the weakest link. Harold Cox tells a story of his life as a young man in India. He quoted some statistics to a Judge, an Englishman, and a very good fellow. His friend said, "Cox, when you are a bit older, you will not quote Indian statistics with that assurance. The Government are very keen on amassing statistics – they collect them, add them, raise them to the nth power, take the cube root and prepare wonderful diagrams. But what you must never forget is that every one of these figures comes in the first place from the *chowty dar* [village watchman], who just puts down what he damn pleases."

While strides have been made in improving the coverage and accuracy of police-reported crime data (in India as well as in this country), there is still need for a great deal of improvement. My hope is that this report helps to realize this goal.

Report Organization

The organization of this report is as follows: The next section gives a brief summary of how the coverage of the UCR has increased over the past few decades, both in terms of population covered and State collection efforts. Section III describes the reasons for incomplete crime data and Section IV problems with arrest data. Section V documents the steps necessary to verify and publish CIUS. The imputation procedures used by the FBI to account for these gaps are described in Section VI, and the problems with these imputation procedures in Section VII. Some suggested changes in the imputation procedures are described in Section VIII. Issues related to the SHR data are addressed in Section IX. Conclusions and recommendations are found in Section X.

Five appendixes are included: Appendix A lists the attendees at the BJS/FBI workshop. Appendix B is a compendium of crime-related data available on the Internet from State agencies. The crime reporting history of each State is charted in Appendix C. Appendix D lists some of the characteristics of State UCR collection programs. Appendix E, written by Sue Lindgren of BJS, describes the procedures used to account for missing data in calculating the Local Law Enforcement Block Grant funding for each jurisdiction.

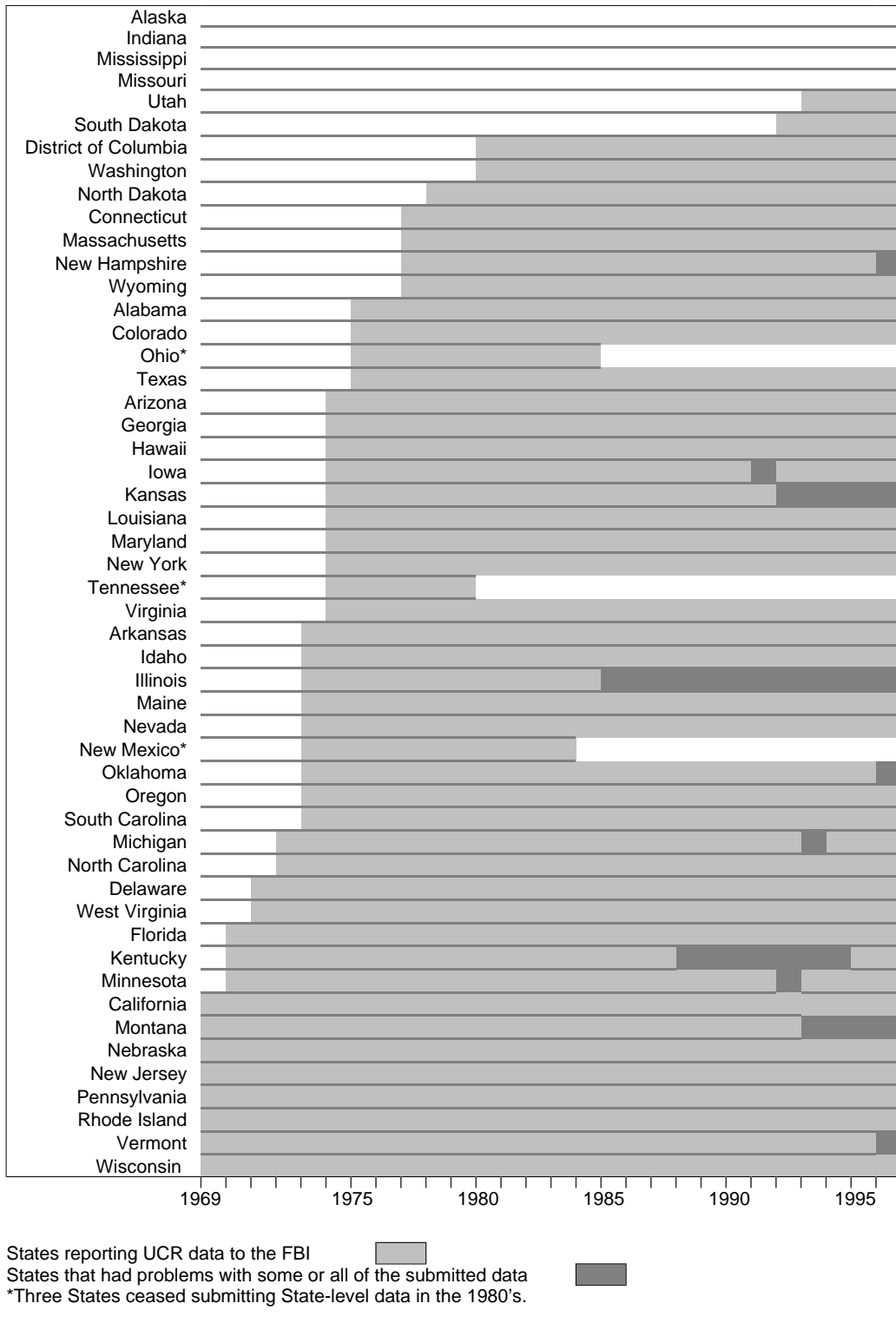


Figure 4. State-Level Reporting of UCR Data to the FBI

Sources: CIUS, 1969-96, and responses from State officials by letter, email, and telephone.

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