Alfred St. Louis, Texas Department of Public Safety

Introduction

The Texas Crime Trend Survey is a mail survey of the general public. The purpose of the Survey is the measurement of crime and the level of reporting of crime by citizens to the police. In addition to measuring levels of crime and reporting, the attitudes and expectations of the public are also queried. The results of the survey are widely distributed to criminal justice agency administrators and planners, and also to the general public through the press. The survey is a new crime information system based upon the reports of crime victims and the general public.

Sample

The Texas Crime Trend Survey was initiated in March, 1976. The original design calls for the survey to be conducted every six months, in January and July. The sample size is 1000, and the sample is a systematic random sample drawn from the computerized Texas Drivers License file which is maintained by the Texas Department of Public Safety. The focus of the survey is the individual driver's experience with crime, rather than the household unit. The survey is not a panel study, and new names are surveyed every six months. While the survey of 1000 people is repeated every six months, the length of the reference period is 12 months. Each respondent is queried about his or her experience with crime during the 12 months prior to the survey. Thus, each successive survey covers 6 months that were previously covered, as well as the most recent 6 month period. The effect of the 12 month reference period is continuously overlapping surveys. The result of overlapping reference periods is that data from 2000 people are available for analysis when 2 surveys with overlapping time periods are combined. By utilizing the technique of overlapping time periods the 2 sets of data for each time period can be compared to each other for purposes of validating the measures of crime.

Methodology

The survey is conducted by mail using a visually attractive booklet questionnaire illustrated with cartoons. The methodology is based on the work of sociologist Don Dillman and his colleagues at the University of Washington.¹ The main principle is persistent follow-up. The persistent follow-ups overcome the most serious shortcomings of mail surveys - the generally low response rates. When response rates are below 50%, and this is common when extensive followups are not used, the data are of limited value in providing accurate estimates. The methodology used in the Texas Crime Trend Survey has consistently produced response rates between 84% and 86%.

The procedure used to contact people in the sample begins with a cover letter and clearly

numbered questionnaire. After 2 weeks a followup postcard is mailed to non-respondents. The initial mailing and one follow-up produces about 60% of the sample. After 4 weeks from the initial mailing a second cover letter and questionnaire are mailed to about 350-400 people who have not responded. About half will respond, and the other half are mailed a 2nd postcard 6 weeks from the initial mailing. After 8 weeks the response rate averages between 84 and 86%.

The remainder of the sample is then telephoned to estimate the non-response effects. Only half of the non-respondents can be reached by phone, because they either do not have one, or they have unlisted numbers, or have moved, died, etc. Of the people who do have accessible phone numbers, half are successfully interviewed to estimate non-response effects. The telephone follow-up stimulates more questionnaire returns, but they are usually too late to include in the analysis. Generally, the bias in the response rate is in the direction of prior victimization. The people who have been victims are more likely to return the booklet promptly.² Thus, victimization implies interest and greater motivation to participate in the survey. The response rate was 84.4% for the first survey and 84.7% for the second survey.

Beginning with the third survey a Spanish translation of the questionnaire was mailed to all persons with a Spanish surname who were nonrespondents at the time of the 2nd follow-up mailing. This translation increased the response rate to 85.6%. Several additional factors which are operating to produce the high response rate are the legitimacy of the agency conducting the survey, the Texas Department of Public Safety, and the public interest in the topic. The Texas Department of Public Safety includes the Highway Patrol, Disaster Emergency Services, and the Criminal Investigation Division. The good public image and the professionalism of the Department employees is recognized throughout the state. Also, increasing crime rates in Texas have contributed to increased public interest in the topic. The 1977 session of the Texas Legislature included a widely publicized package of bills aimed at "Crime Control".

Texas Crime Victim Index

The data collected from the Texas Crime Trend Surveys are used to develop the Texas Crime Victim Index. This Index measures the percentage of the population who are victims of crime. The Index is analogous to the IACP-FBI's Index of Serious Crime which is popularly known as the crime rate. However, while the FBI Index is presented in crime events per 100,000 population, the Texas Crime Victim Index uses the person as the unit of analysis rather than the crime event. In the Victim Index if 20 people out of 100 experienced 30 crimes in the past year, the result would be an index of 20 percent. The FBI Index, based on crime events, would score this as a rate of 30,000 per 100,000.³

The purpose of developing the Crime Victim Index and presenting it in a simple percentage format is to improve public understanding of the crime rate and the risk of crime. This emphasis on the communicability of crime statistics has been recommended by the recent report of the National Academy of Sciences: Surveying Crime.⁴ The presentation and display of crime data to the public in an easily understood format should enable people to assess their personal exposure and vulnerability to crime, and to react accordingly. Just as we are now being told by public health officials that the next great advances in the longevity of life will have to come from the individual's own efforts to respond and react to his environment, the same principle may be applied to crime control. The efforts of individual citizens to reduce their exposure to the risk of crime is a promising area of future research in crime prevention and control. Comments and letters received from survey respondents indicate that some people are acutely aware of this approach, and have already reacted by taking measures to reduce their risk of both property and violent crime.

The data from 3 surveys have been analyzed, and trends have been developed. The Texas Crime Victim Index registered a statistically significant increase in 1976 when compared to the 1975 baseline data. The percentage of victims in the population increased from 17.9% to 21.6%. The definition of victim is operationally defined by the responses to the seven types of crime queried in the survey booklet: Burglary, Robbery, Rape, Assault with Weapon, Assault with Body, Motor Vehicle Theft, and Other Theft. If a person reported they were a victim of one or more of these crimes then the computer program classified them as a victim. Attempts were classified separately from victims for quality control purposes. Because the survey is involved in measuring crime as perceived by the respondent, some attempted crimes could easily be dismissed as projections of the imagination. Therefore, to insure a stringent definition of crimes reported attempts are classified and analyzed separately from completed crimes.

The Texas Crime Victim Index is divided into the Violent Crime Victim Index and the Property Crime Victim Index. The 1976 indices registered a 5.2% violence index and a 16.4% property index. The violence index is composed of Robbery, Rape, and Assaults. The property index is composed of Burglary, Motor Vehicle Theft, and Other Thefts. Both indices are composite indices, and the separate crime types are unweighted. Theft accounts for most of the crime events in the raw data used to construct the Texas Crime Victim Index, followed by Burglary which is the second most frequent of the crime events. Therefore, the Texas Crime Victim Index shares the same characteristics of the weighting problem as the unweighted FBI index of crime. The components of both indices are unweighted, and each of the composite indices is strongly influenced by Theft which is the most frequent crime. However, even though the Victim Index is unweighted, it may be a more sensitive measure of violence than the FBI index.

The FBI index of crime, the Uniform Crime Reports, indicates that violence accounts for about 7% of all 1976 Texas crime included in the index, and the remaining 93% is classified as property crime.⁵ In the Texas Crime Victim Index violence accounts for 23% of the total 1976 index, while property crime accounts for the remaining 77%. The two indices are compared in Graph A. The definitions of violence differ in the Uniform Crime Reports and the Texas Crime Trend Survey, so direct comparison of the distinct measures is at best speculative, but it is used here for heuristic purposes. The main differences in the data collection systems between the FBI Index and the Texas Crime Trend Survey have been previously acknowledged and summarized elsewhere.⁶

The violence index used by the FBI includes Homicide, Aggravated Assault, Robbery, and Rape. The Texas Violent Crime Victim Index does not include Homicide, includes only completed rapes, and includes assaults that do not meet the FBI's definitional requirements of "aggravated assault". The most frequent crime of the violent crimes queried in the Texas Crime Trend Survey is Assault with Body. No doubt many of these assaults would probably be classified as "simple assaults" according to the definitions contained in the Uniform Crime Report guidelines. However, since the Uniform Crime Reports Index contains many petty thefts, especially since 1972 when the \$50 minimum on crimes of theft was dropped, it could be argued that the Index is overly weighted by petty thefts, and underweighted by violence such as assaults which do not meet the strict definition of aggravated.

The unweighted Index of the Uniform Crime Reports for Texas is increasingly dominated by the crime of Theft. In 1970, the crime of Theft accounted for 30% of the Index crimes. By 1976 the crime of Theft accounted for almost 59% of the Index Crimes. During the same six year period the 4 violent crimes share of the Index decreased from 13% to less than 7% of the Index. The internal changes in the unweighted Index, namely the dropping of the \$50 minimum value of Thefts, have produced serious change in the FBI's Index of Serious Crime: the Index is being dominated by the least serious of the seven crime types. Projecting into the future, if this trend continues the composition of the crime index in 1980 will be 75% Theft, and 25% for the other six crime types. One way to overcome this continuing trend is to include less serious crimes of violence in the Index. The Texas Crime Trend Survey includes the crime of Assault in its Index of crime, and the result is an index that is not quite so dominated by the crime of theft. However, more data will have to be collected to insure the reliability of the Texas Violent Crime Index. Also, the Texas Crime Victim Index still shares major characteristics of the FBI Index: both are unweighted by crime type, and both include petty theft.

There have been numerous critiques of the disadvantages of an unweighted crime index, as well as several major efforts to weight the

Graph A MEASURES OF CRIME



individual component crimes of the index. Despite the conceptual disadvantages of unweighted indices of crime it is difficult to improve them. Blumstein's analysis of the FBI Index concluded that attempts to weight the individual crimes in the index did not appreciably add to the information communicated in the Index over time.⁷ The implications of Blumstein's analysis are: (1) leave the FBI Index unweighted as is, and (2) develop other indices to measure specific crimes or groups of crimes. Therefore, there is a need for multiple indices of crime, but do not change the FBI Index because it works well as designed. The purpose of developing the Texas Crime Victim Index is to complement the information available from the IACP-FBI Index.

The Texas Violent Crime Index increased from 4.2% in 1975 to 5.2% in 1976, but the difference was not statistically significant at the .05 level. This means that the percentage of the population who were victims of violence in 1976 was estimated to be 5.2%. This comparison was made with sample sizes of 1000 and in future comparisons when samples of 2000 are available the possibility of statistically significant results will be enhanced by the larger N's.

The change in the Property Crime Index between 1975 and 1976 was statistically significant, from 13.7% to 16.4% of the population. The sample sizes of 1000 were sufficient to detect the change in property crime at the .05 level. The next report comparing two complete years of data from the surveys, the comparison of 75-76 with 76-77, will have sample sizes of 2000 for all time periods when the data from 1977 is collected in February, 1978.

Trend Data

The data on trends over time in the Crime Victim Index can be presented by month of occurrence or any time period less than 1 year, as the month is queried in the survey. When the data are displayed in six month periods, which is a convenient time frame because of the semiannual data collection and overlapping reference periods, the results of successive surveys can be combined. The two year trend displayed in the Texas Crime Victim Index is generally stable with the exception of the first 6 months of the data, the January to June period of 1975. The Victim Index for successive six month periods was: 14.4%, 21.8%, 21.0%, 21.9%. The second and third percentages are averages of two samples combined, and therefore represent a total sample size of 2000. The first and fourth percentages are based on only one sample of 1000 each. The fourth percentage, 21.9%, will be averaged with data from the current survey which also covers the last six months of 1976, as well as the first six months of 1977.

The anomaly in the two year trend is the first six months of data collected, the January to June, 1975 data. The low index level, 14.4%, could have occurred because the first survey was almost three months behind the mailing schedule. Instead of being mailed on January 1, 1976, the survey was mailed on March 20, 1976. The result

was that a reference period of 15 months was used instead of 12 months as originally planned. The effect of this lengthened reference period could be the cause of the relatively low level of crime measured for early 1975. A longer reference period implies memory decay, and some previous research conducted by Biderman suggests that memory loss is a critical variable. Fortunately, for Index development purposes the first six months of data can be dropped from consideration because only one sample of data is available for that time period. The accuracy of the Crime Victim Index is improved by utilizing only time periods covered by two overlapping samples. These double measures of the crime level will be useful in detecting extreme variation in trends.

The accuracy of the Texas Crime Victim Index has yet to be conclusively demonstrated as it is in a developmental stage of growth and increases in the sample size are planned. However, there is some evidence that the Index will be reasonably accurate when the developmental efforts are completed. The two time periods that were covered by successive samples were the last six months of 1975 and the first six months of 1976. The Index measure was within 1% for each of the two separate periods. In the second half of 1975 the two separate samples measured the crime level at 21.4% and 22.1%, a difference of only .7%. For the first half of 1976 the two separate samples measured the crime level at 21.3% and 20.7%, a difference of .6%. The standard error is 1.2% for a 1000 sample size, so both of these tests were well within the standard error. This demonstration of the accuracy of the Index is not conclusive proof, but it is encouraging information suggesting that further investment in this Index development will have a high probability of success. The cost of conducting the Texas Crime Trend Survey even with an expanded sample size will be less than the cost of any other comparable measure of crime. However, the accuracy of the measurement of crime levels in society is a subject worthy of at least two separate and distinct indicators. Both the Uniform Crime Reports and some measure of the Victim experience such as the Texas Crime Victim Index should be continuously refined to monitor the crime rate. The cost of the criminal justice system in Texas is rapidly approaching \$1 billion annually, and this expenditure alone is sufficient to justify investing in accurate measures of crime.

The violence index is not nearly as stable as the Texas Crime Victim Index. The percentages of the two separate measures for the last half of 1975 were 5.0% and 7.0%. For the first 6 months of 1976 the two measures were 6.6% and 5.2%. The standard error is .7% for the violence index, and this value was exceeded in the 1975 measures. Because the violence measure is a relatively small part of the sample the accuracy is expectedly lower, and therefore less stable. Larger samples will be necessary to develop accurate measures of violence. Future plans for the survey include increasing the sample size to 4000 or 5000 per survey. The goal of the survey operation is to continue to keep the costs low while automating as much of the mailing and data processing without losing the personalized letter format. Until some technical problems in automating the data collection are solved the sample size will not be increased.

Costs

The cost of conducting the Texas Crime Trend Survey is estimated at \$3 per completed survey booklet. This cost is very low compared to other data collection methods. A recent study estimated the costs of conducting crime surveys by telephone interviews around \$30 per interview, while the current LEAA - Bureau of the Census personal, face-to-face interviews were estimated to cost \$100 per interview.9 Traditionally, mail has always been viewed as the cheapest method of collecting data. The low response rates from mail surveys have prompted more expensive personal interviews. But, if the public is interested in the topic, as is the case with the topic of crime, and good follow-up techniques are utilized, then the non-response problem is effectively solved, and costs are kept low. Mail collectic eves by transfering the labor costs from the interviewer to the interviewee. This savings in labor is partially offset by the disadvantage of one-time feedback from the respondent. No clarification can be made on ambiguous responses. However, since 75 to 80% of the sample are non-victims during the 12 months reference period, the ambiguous responses apply to only a fraction of the total sample. To be sure, the victims of crime are a small fraction of the total sample, but they are the most important part of the sample in terms of the analysis of the data. Therefore, any techniques to reduce ambiguities in the questions and responses will help insure accurate measurement.

Comparison of Results

The data collected by mail have been compared to other data bases of crime data including the FBI Uniform Crime Reports for Texas, 1975, and the Texas Department of Public Safety UCR program, 1976. The crime survey data are not directly comparable to the UCR because the definitions of crime differ. However, the overall pattern of crime uncovered by survey is similar to the pattern of crime reported by police. Most of the crime measured by both of these methods is Theft, followed by Burglary which is second in volume. There are differences between the volumes due to reporting and non-reporting, but the iceberg theory does not hold. That is, reported crime is not the proverbial tip of the iceberg, as the most serious crime is reported to the police. The reporting of crime varies directly with seriousness of the crime, both in terms of violence and dollar loss amounts. The bulk of unreported crime is thefts with small losses, under \$200. The crimes that are unreported vary by crime type, but, generally the picture of crime portrayed by data from victim surveys is very similar to the pattern in the Uniform Crime

Reports.

The unreported crime data from the Texas Crime Trend Survey have also been compared to the published data from the National Crime Panel Victimization Survey conducted by the Bureau of the Census under contract with LEAA. The data presented in the LEAA publications are not directly comparable because of different wording in questions, and also because the rates of crime are presented in terms of crime events per 1000 population. The Texas Crime Trend Survey data are presented with the victim as the unit of analysis rather than the crime event. However, some data from the National Crime Panel have been tabulated and published in a format comparable to a breakdown of the Texas data. The data on Unreported Crime Incidents published by Skogan indicate that of all unreported crime in the US in 1973, Larceny-Theft comprised 73% of the total, followed by Burglary with 14%, and Assault with 8.5%.10 The data from the Texas Crime Trend Survey for 1975 indicate that Theft comprised 66% of all unreported crime events, Burglary 16%, and Assault 8%. The two sets of data, the National for 1973, and the Texas for 1975, are not identical. However, the pattern of unreported crime in both sets of data is very similar, and is illustrated in Graph B. Theft is the most frequent unreported crime, followed by Burglary, Assault, etc. This similarity of patterns indicates that the measurement of unreported crime is reasonably consistent, even when different

methods of collection, mail and personal interview, are used. Regardless of the data collection method the general pattern of unreported crime is consistent. This is not an attempt to ignore the real differences involved in different methods of collection, but simply an effort to illustrate the reliability of data collected by mail questionnaire. For example, more methodological research would be required to see which method, mail or personal interview, is more likely to elicit information from rape victims. While mail and personal interview methods produce a similar general pattern of unreported crime, there may be specific areas of systematic variation associated with each different method whether it be telephone, mail or personal interview. Herman found that telephone interviews may not be as good as personal interviews for sensitive data such as illegal behavior or voting decisions.11

Additional Survey Findings

In addition to measuring the level of crime in the state, the survey measures the level of reporting and non-reporting to the police. This information is of particular value to the police. The reasons for non-reporting have also been analyzed, and the main conclusion is that reporting is primarily a function of the seriousness of the crime event. The more serious or costly a crime is to the victim, the more likely it will be reported to the police. There are variations in





reporting by type of crime, however, especially regarding rapes and attempted rapes where embarrassment and stigma reduce reporting levels.

Also included in the survey reports are data on losses due to crime. In 1975 the average loss per adult Texan was estimated to be \$98. In 1976 the average loss increased to \$109 per adult Texan. The expectations of future crime are queried in the survey, and there was a slight increase in the fear of crime for 1976. The victims fear of crime increased from 31% to 33% in 1976. This means that one-third of the victims expected to be victimized again in 1977. The fear of crime among non-victims is lower, only 14% of the 1976 non-victims expected a crime in 1977. The expectations of the public regarding crime are potentially a sensitive measure of future crime events, as well as a measure of the general fear of crime.

Other data available from the survey are the rural-urban distribution of crime, the risk of crime by age, sex, race and ethnic background of the survey respondents, income levels and risk, etc. Relationships among these variables have been summarized in previous survey publications. In brief, there are many possibilities for new analyses of data that have previously been unobtainable because of the lack of an information system focusing on the general public and the crime victim.

References

- Dillman, Don A., Christenson, James A., Carpenter, Edwin H., Brooks, Ralph M., Increasing Mail Questionnnaire Response: A Four State Comparison. American Sociological Review, October, 1974. pp. 744-756.
- Sen, A. R., Developments In Migratory Game Bird Surveys, Journal of The American Statistical Association, March, 1976, Volume 71, Number 353. pp. 43-48.
- 3. U. S. Department of Justice, Federal Bureau of Investigation, Uniform Crime Reports, Crime in the United States 1975, August, 1976.
- National Academy of Sciences (Panel for the Evaluation of Crime Surveys) Surveying Crime. Washington D.C. 1976.
- 5. Texas Department of Public Safety, Crime In Texas, 1976.
- St. Louis, Alfred, Victim Reports of Crime: The 1975-76 Texas Crime Trend Survey. Statistical Analysis Center, Texas Department of Public Safety, Austin, Texas. April, 1977.
- Blumstein, Alfred, Seriousness Weights in an Index of Crime, American Sociological Review, December, 1974. pp. 854-64.
- Biderman, Albert D., Surveys of Population Samples for Estimating Crime Incidence. The Annals of the American Academy of Political and Social Science. 374 (1967). pp. 16-33.
- 9. Tuchfarber, Alfred and Klecka, William R., Random Digit Dialing: Lowering The Cost of Victimization Surveys, The Police Foundation, 1976.

- Skogan, Wesley G., Dimensions of the Dark Figure of Unreported Crime. Crime and Delinquency, January, 1977. pp. 41-50.
- Herman, Jeanne Brett, Mixed-Mode Data Collection: Telephone and Personal Interviewing. Journal of Applied Psychology, Forthcoming, 1977.

Footnote

* This research was supported by Grant No. AC-76-F01-4362.