

USING RECORD CHECKS

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I. INTRODUCTION

Administrative record data can be a valuable resource in the development of questionnaires. This paper describes the use of records and matching as a way of evaluating proposed questionnaires from the point of view of response accuracy. The general discussion is followed by an example from the National Crime Survey.

A match is any linkage of records from the same population in order to provide more complete information pertaining to an individual or a group. Matches are either exact or statistical; that is, the linkage brings together information from different sources for a specific person or it associates data for persons who have similar characteristics. Record checks, as used here, are a form of exact matching. In the development of questionnaires, the purpose is not so much to accumulate more information about an individual, but to compare data obtained by means of a survey questionnaire with information on the same subject from administrative records. The latter are assumed to represent the standard against which the survey responses are to be judged, although it should be recognized that administrative records are themselves subject to error. (1)

The main objective of a record check when used in questionnaire design and evaluation is methodological—to determine whether the desired information can be obtained by a survey. Can respondents recall the events, can they report them with reasonable accuracy, and are they willing to do so? Subsidiary objectives include ascertaining which kinds of topics are better reported and which are not, and determining the appropriate reporting period for asking respondents to recall events.

There are two basic approaches to the conduct of a record check. In the more usual case, a sample of persons with the desired characteristics or experiences is drawn from administrative records and an attempt is made to interview these individuals with a questionnaire designed to elicit responses that can be compared with information from the records. This approach is generally referred to as a reverse record check. The alternative is to select a sample of survey questionnaires and attempt to match them with administrative records so that answers to similar topics can be compared. This method has been called a forward record check.

In the development of questionnaires, the reverse record check has important advantages. It provides at reasonable cost a sample of persons possessing the characteristics or exhibiting the behavior that one may wish to study in a full-scale survey. This is especially desirable when the variable of interest occurs so rarely that screening the general population for eligible cases would be prohibitively expensive. In situations where the subject matter is unfamiliar to those responsible for the survey, or there is not much outside experience to draw on, a sample of persons known to possess the desired attributes can provide clues as to the proper way to phrase questions, or even to test whether the desired information can be usefully collected by a sample survey.

A drawback of the reverse record check method is that important aspects of the topic may not be covered by administrative records. For example, in studying the accuracy of reporting crime victimization by sampling police records, it is obvious that only crimes that find their way into police record systems are included. Thus, one can ascertain which of the crimes sampled from police records a respondent failed to report, but one cannot draw conclusions about incidents reported to interviewers that were not in the administrative sample. The survey designer should be aware of this limitation of the reverse record check method in questionnaire development. The following discussion is focussed on the reverse record check as an aid to questionnaire design.

II. METHOD

Personnel and Skill Requirements

A record check is a labor-intensive procedure, both in transcribing the data from the records and in determining whether information available from both sources constitutes a match. Depending on the type of records and arrangements with the record holders, the data transcription may be done either by clerical personnel from the survey organization or by the record-keeping agency.

The matching operation is done by the survey organization, and may require professional staff assistance in resolving problems with the matching, in addition to clerks (if the matching is done by hand) or persons with computer experience (if the matching is done by computer). The choice between these two methods of matching may be based on the number of records—it probably would not be cost-effective to do a computer match with relatively few records.

In addition, the field work stage requires interviewers and all associated tasks of interviewer recruitment, interviewer training, etc. After the completion of the interviewing and matching phases, qualified professionals are needed to analyze the results.

Selection of Respondents

Respondents for the field test are selected in the record transcription phase of the project. The number of records selected is principally a function of available funds and the degree of precision required of the results. If the records are ordered chronologically, and this is an important element of the test, a systematic selection should be made; in other instances a convenience sample may be sufficient. Since there will be a time lag between the occurrence of the event and the interviews, allowance should be made in sample selection for movers who have left the area, as well as for bad addresses and persons who can never be found.

Preparation

Before adopting the record check as part of the questionnaire design process, one should be aware of the issues that are likely to arise in implementing such a procedure. These issues need to be evaluated

against the goals of the particular survey in order to determine whether a record check should be incorporated into the survey development plan.

The first step is to locate a record system containing the desired information and one from which a sample can be drawn. One system with the requisite number of cases would be preferable to drawing samples from several systems, but this may not be possible if a series of sequential record checks is planned or a variety of record systems is needed to test all the important variables. Proximity to the survey organization may be an important consideration in selection of a record system as a way of keeping costs down.

Before deciding on a particular source for record check cases, there are other matters that need to be addressed. Obtaining permission to use administrative records may be time consuming, even if the records are open to the public. At the least, a letter describing the survey and the kinds of information needed from the records must be sent to the appropriate official under the signature of the head of the survey organization or other responsible person. Before obtaining permission, it would probably be advisable to determine how the records are organized—chronologically, by subject matter, geographically, etc.; whether they need to be reordered before a sample can be selected; what form the records take—paper copies of originals, computer printouts, microfiche, magnetic tape, etc; whether the sampling can be done by the survey organization or must be done by the record holders; whether any of the information on the records is confidential and, therefore, must be blanked before the sample is chosen. Depending upon the responses to these questions, the decision can be made whether to request formal permission to use the records. If the sample selection cannot be done by the survey organization, it is important to obtain an estimate of the cost of the work to be performed by the record holders, as well as an idea of the time they will need to select the sample and prepare the cases for follow-up in the field. The time element may be important in deciding whether to use a particular record system, especially if the record keepers select the sample on a time available basis, rather than on a pre-determined schedule. No matter how promptly the sampling is done, there will inevitably be a time lag between when the events occurred and when the field test takes place.

In addition to the basic information needed to locate respondents—name, address, telephone number—other descriptors should be identified to assist in matching cases obtained in the field with those in the original sample. The absence of adequate matching criteria, beyond the key items of interest, would be sufficient reason not to utilize a particular record system. Since respondents may report to interviewers similar or related events that were not part of the administrative record that caused the case to fall into sample in the first place, specific information about the event, in addition to its date of occurrence, may be as important as demographic characteristics of the respondent.

Operation

The field work stage of the record check should occur as soon as possible after the sample is select-

ed. Interviewers should already have been recruited and trained. Depending upon how long it takes for events to be incorporated into the record system, a minimum of several months and possibly much more time will have elapsed since the target incident took place. It is, therefore, important to minimize further delays which would complicate efforts to find respondents and increase problems of recall.

Ideally, the purpose of a record check (which is to find out whether respondents will report a particular event) should not be revealed to either interviewers or respondents so as not to bias the results. However, it may be difficult and/or costly to maintain this stance in practice. Unless the questionnaire covers a great many other subjects, interviewers may notice that most respondents will report their involvement in a particular kind of event—attendance at plays or concerts, visits to physicians, victims of crime, etc. This could result in biasing the test because interviewer expectations could affect the results obtained. One way to minimize this possible effect is to supplement the sample with dummy cases, i.e., nearby addresses which would have a much lower probability of exhibiting the type of behavior being measured. However, this may greatly increase the cost of the test and might not entirely achieve its purpose. By not giving the interviewer the sample respondent's name, interviews would have to be administered to all potentially eligible persons in the household. Cases might also have to be sent back to the field for an explanation if there is no interview with the sample person, although this would nullify the attempt to disguise the survey purpose.

An explanation of the purpose of the survey should be prepared for interviewers to give as part of their introduction. A general statement which does not reveal the source of sample will probably satisfy most respondents. But some will press for more information—a telephone number to authenticate the survey auspices or an explanation of how they happened to be selected. In the latter instance, the survey designer must decide how far to go in revealing the source of the sample, although a candid response is usually the best policy.

Once the data have been collected, the critical process of matching respondent reports of particular events (doctor visits, crime incidents, etc.) with record information takes place. Many cases will be obvious matches, but there will be a substantial number of borderline situations where subjective judgement will enter in. For these cases the matching criteria need to be clearly specified, as well as the degree of acceptable variation. However, it is difficult to specify guidelines for this activity because the number of variables used and the definition of what constitutes a matched case will vary according to the subject matter and the objectives of the study. The entire process should be completely recorded so that others can review the decisions made at this key stage of the record check.

Time and Cost Considerations

Although both the time needed to conduct a record check and the associated costs have been mentioned in passing, they are important elements in all phases of a record check. Time must be allotted for the initial research necessary to locate record systems and decide on the feasibility of their

use, for securing permission to use particular systems, and for the record selection process itself. These steps are not entirely under the control of the survey organization, but depend on the co-operation of outside parties.

The requirement to interview a particular person may lengthen the data collection period considerably. Even with a good address, it may take time to find the respondent at home. Interviewing problems are compounded when the address on the record turns out to be inaccurate or it becomes necessary to track down a respondent who has moved.

Matching survey reports back to administrative records can be time consuming. When several hundred records or more are involved, it is probably quicker to do the match by computer. On smaller jobs, the time needed to prepare computer specifications and write programs would make it more feasible to perform a clerical match. Timing will also be affected by the precision of the matching criteria. The more precise the requirements, the more mismatches are likely to occur which then need to be resolved by the professional staff.

To the extent that more time is required to perform the tasks outlined above, especially at the data collection and matching stages, costs will rise. Extra costs may be incurred if the record keeping agency selects the sample or if the survey staff has to travel to examine record systems, select the sample, etc.

Mode of Data Collection

Record checks are most frequently used in conjunction with personal visit surveys because the home address is normally a part of the administrative record. If telephone numbers are readily available, this interviewing mode can also be employed, although a small proportion of interviews may have to be done in person. Responses to a mail survey can be checked against administrative records, but the rate of return should be sufficiently high to guarantee the validity of the results. Using the mails in a reverse record check is considerably more risky because of the problems involved in locating persons who have moved from the address on the administrative record.

III. EXAMPLE: CRIME SURVEY TESTS

Introduction

The National Crime Survey (NCS) used reverse record checks for a number of purposes in preparing for the initiation of a nationwide survey in 1972. The procedure used was to draw a sample from police records of persons who had been victimized by certain crimes and then attempt to interview them with a questionnaire designed to elicit reports of victimizations.

A series of three reverse record check tests were undertaken in preparation for the National Crime Survey. All were conducted by the Bureau of the Census under the sponsorship of the Law Enforcement Assistance Administration. The first test was held in Washington, D.C. with the sample of 484 cases drawn from Metropolitan Police Department records. (2) Baltimore, Maryland was the site of the second test which utilized a sample of 527 from Police Department files. (3) The final, and most elaborate, record check consisted of 620

cases of known victims selected from police records in San Jose, California. (4)

Objectives of NCS Record Checks

The most important objective of the NCS record checks was to aid in developing a victimization questionnaire by measuring the ability (or willingness) of crime victims to report to interviewers incidents of crime which had originally been reported to police authorities and recorded by them. A series of questions was formulated containing the elements of the kinds of crimes covered by the proposed survey—rape, robbery, assault, burglary, larceny, and motor vehicle theft. Persons selected from police files had been recent victims of one of these crimes. An underlying assumption was that questions that were successful in eliciting reports of incidents sampled from police records would also be appropriate for obtaining information about incidents not reported to the police—an assumption which could not be independently verified.

The questionnaire designed to achieve this objective was a combination screener and incident form, although varying versions of the questionnaire were used in each jurisdiction depending on the specific objectives of the test and, in the case of Baltimore and San Jose, reflecting experience gained in earlier tests. The screener contained a series of questions, phrased in nontechnical language, intended to jog a respondent's memory about the kinds of crime which would eventually be included in the National Crime Survey. The incident form collected detailed information about each reported incident so that a match could be made with the sample cases from police files. In all three NCS tests, crimes other than those selected for the record check sample were reported by the respondents when they were interviewed. The information gathered on the questionnaire was generally sufficient to distinguish these additional incidents from the ones in the record check.

In addition to matching as many incident reports as possible, another objective was to ascertain the degree of correspondence between the survey's classification of the crime and that assigned by the police. An important related objective was to determine the ability of the respondent to report certain other facts about the incident that could be verified by the police record. This included such items as estimates of property loss, characteristics of the offender(s), and month of occurrence of the incident.

Other objectives were crucial to the development of the NCS. These included the length of the reference period to use in asking about crime incidents befalling respondents, the degree to which respondents moved ("telescoped") incidents into the reference period that occurred outside it (usually earlier), and the degree to which events, although located properly within the reference period, were not placed in the correct month.

Technical and Operational Considerations

Selection of the test sample from police records

The test samples were drawn soon after the close of the reference period about which

respondents were asked to report their victim experience. This was not only because of anticipated memory decay, but, more importantly, stemmed from the difficulty in locating victims of crime, especially violent crime, who appear to be a highly transient group. The "success rate" in finding and interviewing crime victims averaged about 66 percent for the three NCS record checks.

Direct access to police files in order to draw a sample was not possible in all three jurisdictions, so detailed sampling specifications had to be prepared for police personnel. In order to do this properly, it was necessary to know how the files of offense reports were organized, whether the files were computerized, what information was available about the incident, whether the initial police report contained more information than was in the computerized file and, if so, whether the police report could be made available. Where it was necessary for the police to draw the sample, the time schedule for the test had to allow for the police department's ability to fit this work in with their regularly assigned duties.

Information needed from police records

Sufficient information about the incident and the victim had to be obtained from police records to facilitate a match between cases selected and cases interviewed. Achieving this goal was complicated by police confidentiality requirements and, in another case, by the sparse amount of information on the computerized file. For example, in Washington, D.C., the initial police reports were public documents and copies were readily available. However, the police had to select the sample because confidential material about the incident was filed with the police report. In Baltimore, copies of the police report were not available and identification information about the victim and details of the incident had to be hand copied from police reports after the sample was selected from computerized files. Knowledge of the victim's place of work, hours of work, and office telephone number from police files proved to be extremely useful to interviewers in finding some difficult-to-reach respondents. However, supplying this information made it impossible to disguise the source of the sample cases.

Field operations

Interviewer training stressed techniques for locating respondents, in addition to a thorough review of the content of the test questionnaire.

Although, as noted earlier, it is desirable to commence field activities as soon as possible after sample selection, one should avoid starting when only part of the sample has been chosen. The latter situation caused problems in the Washington test. Because of delays in the police selection of cases, interviewers were assigned cases on a flow basis. Since the police files were organized by the month of occurrence of the incident, cases were assigned whenever a particular month's sample was selected. This proved to be an inefficient use of interviewers because cases received in the latter part of an assignment were often for addresses in neighborhoods visited earlier.

Although it was recognized that informing interviewers of the source of the sample cases and

providing them with the names and addresses of victims could bias the results, there did not seem to be any reasonable alternative. Having the name of the victim made it possible to follow up many of the cases which could not be found at the initial address. Without the victim's name (and information relating to jobs held when that was available), completion rates would have been far lower in the Washington and Baltimore tests.

The San Jose record check test was held under different circumstances in that it was conducted at the same time as a victimization survey of the general population. The general population sample was about 8 times larger than that in the record check. Thus, it was easier to mask the fact from interviewers that part of the workload came from police files. For both kinds of cases, interviewers were supplied with addresses but not names. However, it was apparent to some interviewers that the record check cases had distinctive identification numbers and that these households produced many more crime events than did the other households. Also, record check cases were subjected to an office edit to ensure that the victims had been interviewed. If no filled questionnaire was found, the interviewers were then given names and other pertinent information and instructed to try to locate and interview the victims.

At first, it was thought undesirable for interviewers to tell respondents initially how their names had been selected for fear of biasing the results. However, the need to telephone many persons in advance to arrange an interview usually required a more lengthy explanation of the purpose of the survey than was needed in a personal interview. Interviewers were instructed to inform respondents that their names had been selected from police records when asked directly or whenever the interviewer felt it was necessary to gain cooperation. This knowledge had no discernible impact on the substance of the interview or on the respondent's willingness to participate in the survey.

Results of Record Check Tests

The principal finding of the three record check tests for the National Crime Survey was that the crimes covered by the survey could be elicited to an acceptable degree by the questionnaire as it had evolved by the time of the San Jose test. The results from that test are shown in Table 1. With the exception of assault, the recall rate for the other major crimes was collectively above 80 percent. Evidence from each of the tests demonstrated that assault was the least well recalled (or reported) of the crimes. It was also apparent that aggravated assault, the more serious form of the crime, was better reported than simple assault. In addition, the closer the relationship of the victim to the offender, the less likely was an assault incident to be reported to an interviewer. Thus, assaults by strangers were well reported, but assaults by relatives were often not mentioned.

One important caveat in using crime incidents drawn from police records should be noted. Crimes reported to the police and subsequently reported in survey interviews undoubtedly differ from those that are never brought to police attention. In general, the former tend to be more significant and therefore more salient in respondent's minds.

Questions which elicit reports of such events may provide an overestimate of what the level of recall would be for all crimes of a particular type.

Table 1. San Jose Reverse Record Check: Number and percent of cases interviewed that reported incident, by type of crime

Type of crime	Total cases interviewed	Incidents reported in survey	
		Number	Percent
Total	394	292	74.1
Rape	45	30	66.7
Robbery	80	61	76.3
Assault	81	39	48.1
Burglary	104	94	90.3
Larceny	84	68	81.0

Source: (4)

As a result of the record check tests, several modifications were made in the final questionnaire. Initially, it was intended that the screening questions would indicate the specific crime involved and that interviewers would fill an incident form tailored to that crime. It soon became clear that the sole function of the screening questions should be to gather all the incidents that respondents were willing and/or able to report, but that no attempt should be made to classify crimes at that stage. To facilitate the recall of incidents, the number of screening questions was increased and additional examples of incidents were incorporated into the question wording. Thus, the determination of which type of crime was involved (including those incidents which were not crimes or were out-of-scope for the survey) was made from the data collected on the incident report. For the regular survey, a single incident report was designed that could be used to record all incidents. Ultimately, the classification of the incident was done by computer.

By the conclusion of the test phase, there was substantial agreement between the classification of incidents by the police and that stemming from the survey. Most remaining differences, in fact, seemed to be traceable to local crime definitions which varied from those employed by the FBI's Uniform Crime Reports, the standard used in the survey.

The record check demonstrated that the respondent's ability to recall whether an incident occurred was not appreciably better when a recall period of six months was used compared with one of twelve months. However, respondents were less

accurate in placing an event in its proper month of occurrence when the recall period was twelve months. Since accurate placement of incidents in time was an important consideration in the survey, the six month period was chosen. A three month recall period would have resulted in greater accuracy, but would have required twice the sample size to achieve the same degree of reliability as the six month period.

The Washington record check documented the tendency of respondents to report events, which actually took place earlier, as having occurred within the recall period. A bounding interview was thus introduced in the main survey to control this tendency by establishing a time frame which can be used in the subsequent interview to edit out incidents occurring before the beginning of the recall period. Data from the bounding interview are not used in preparing NCS estimates. However, households that move into sample addresses in the second through the seventh times that the unit is in the sample are not bounded for their first interview. Reporting incidents that took place later as having occurred during the recall period is less common and can be minimized by conducting interviews as soon as possible after the end of the recall period.

ACKNOWLEDGMENT

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NOTES AND REFERENCES

- (1) For a more complete discussion of matching techniques, see U.S. Department of Commerce, Office of Federal Statistical Policy and Standards, "Report on Exact and Statistical Matching Techniques," Statistical Working Paper 5, June 1980.
- (2) U.S. Department of Commerce, Bureau of the Census, "Victim Recall Pretest, Washington, D.C.: Household Survey of Victims of Crime," (Unpublished memorandum, June 10, 1970).
- (3) Yost, Linda R. and Dodge, Richard W., "Household Survey of Victims of Crime, Second Pretest, Baltimore, Md.," U.S. Bureau of the Census, (Unpublished memorandum, November 30, 1970).
- (4) Turner, Anthony G., The San Jose Methods Test of Known Crime Victims. Washington, D.C.: National Criminal Justice Information and Statistics Service, Law Enforcement Assistance Administration, U.S. Department of Justice, 1972.