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Trends in Survey Methodology and the Future of Crime Research

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Over the years, my conversations with Martin Killias have largely concerned surveys. Martin was involved in the International Crime Victimization Survey, and conducted a number of his own survey projects, while I collaborated in the development of the British Crime Survey and published a number of articles based on the National Crime Victimization Survey in the United States. Since the early 1980s I have also conducted a number of crime surveys of my own, and therefore I have had to make decisions about how to do them and how to raise the money necessary to carry them out. Over this period I have observed tremendous changes in the survey business. What is interesting about this is that these changes have largely reflected changes in society, not scientific advances or technological innovations; it is social change that has revolutionized survey operations. The challenge that this presents is that these changes have mostly been for the worse. That is, they have made sample surveys more difficult and much more expensive to conduct, they have decimated sample coverage and undermined interview response rates, and they have damaged the quality of the data on which we hope to make inferences[1].

The problem is that the traditional ways in which surveys have been carried out – prior to the mid-1980s by personal interviews at sample address, and later by telephone at sample telephone numbers – are no longer feasible in many circumstances. But their replacements – the Internet and (surprise) the re-emergence of postal surveys – have many problems, and they only appear viable because their results are not worse.

In the United States, it was possible for individual researchers to conduct face-to-face personal interview surveys into the 1980s. Households were sampled at random from lists of residential addresses in randomly selected areas of the country or a city. Interviewers knocked on the doors of these households, quizzed whoever answered about the composition of the household, and requested to meet in the living room or over the kitchen table with a randomly-selected adult. The resulting data had a number of very valuable features. With repeated visits to catch selected respondents who were not often at home (and other household members could help on this), the surveys

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[1] Some of the concerns raised here are addressed in a different context in Groves, Robert, «Three Eras of Survey Research», Public Opinion Quarterly 75 (2011) 861-871.

could be highly representative. It was easy to calculate an accurate response rate, and because we had knocked on their doors we knew something about non-respondents as well. Further, interviewers could show respondents visual aides, including printed material they may have seen, and lists of questions and response categories answers for complicated questions. For example, in my study of community policing in Houston, interviewers presented respondents with a map of the area we were calling "your neighborhood" in the survey, and made clear its boundaries. Establishing these personal contacts at sample addresses also made it easier to return to the same households the future for a follow-up interview, resulting in multi-wave or longitudinal data.

For better or worse, they knew us, and had accommodated us once before. Finally, these interviews could be lengthy; it was not unusual for them to last 60 minutes or more, for many respondents felt uncomfortable sending their interviewer away before they were able to complete the survey. The resulting data were of high quality, for response rates routinely exceeded 90 percent in a professionally run survey. If you had to call a respondent on the phone, that worked well too; almost all American households had a telephone, and almost all were listed in the telephone directory.

But by the end of the 1980s, the days of the address-sample personal interview surveys were over. They had become too expensive for routine use. Surveys based on this model are now largely confined to a few lavishly-funded federal projects, for they can cost as much as $1,000 per interview. Residents were becoming wary of letting strangers into their home, and it could be dangerous to dispatch interviewers to knock on doors during the evening hours when people could more reliably be found home. Households were getting smaller, most adults by then were in the labor force rather than engaged in domestic duties, and finding anyone at home and willing to be interviewed was getting harder. The US Census Bureau does a great deal of household interviewing, so they keep track of their visits. Their "Who's Home When" reports for the 1980s documented that finding that no one was at home became increasingly frequent with each passing year, and that no one was home later into the evening as the decade wore on.

The increasing expense, declining response rates, and interviewer safety issues associated with address-based personal interviews led to the wide-spread adoption of a new survey approach, the random digit dialing ("RDD") telephone survey. Calling people on the phone is obviously much more cost-effective than driving to their home, and it can be done safely well into the nighttime hours. The "random" component of an RDD survey was required because of another trend: by the end of the 1990s, many Americans had "unlisted" their telephone number in order to avoid unwanted calls. Researchers responded by generating telephone numbers by computer. These incorporated

the early digits of blocks of numbers known to be in active use by telephone companies. Computers then added a final, random component to the number (usually the last three our four digits). These were passed to interviewers sitting in call centers. These numbers did not all work; in surveys that I conducted, we had cheap student workers call each generated number to see if it rang. Those that worked reached both listed and unlisted households in the correct proportion, and the result could be treated as a random sample of households with telephone lines. Telephone interviewing came later to Europe and because of the complexity of many phone systems its adoption was quite country specific.

The data could be good. Interviewers could actually be more closely supervised and their response rates verified more easily than if they were out in the field. The interviews had to be brief, however, because people could easily hang up if the survey became too burdensome. This proved socially more appropriate than asking in-person visitors to leave. The questions also had to be simple and to offer only a few responses categories, because respondents had to remember both the questions and the possible answers. But the data were affordable, and telephone numbers that rang but were not answered could be called again and again until someone did so, because callbacks were cheap easy.

But those days are gone as well. Representative survey data are very difficult to obtain through RDD telephone surveys. People are busier, and there is growing concern about privacy and identity theft. Answering machines with caller ID enable people to screen out unwanted calls, and – because marketers and political campaigns began to disguise themselves as legitimate surveyors – surveys of all kinds have ended up in the junk-call category. Surveys by major polling organizations now routinely report response rates in the 15-25% range, and this only for studies that aggressively re-contact refusing households and spend money on enhancing data quality. Otherwise, response rates below 10 percent are common. This decline in response rates is not unique to the United States; it has been occurring throughout the developed world.

In addition, there was a sampling problem. RDD surveys were based on the assumption that virtually every household was served by a primary telephone number. Like personal visits, telephone surveys began with selecting a single household respondent from the list of persons living there. Now the norm is increasingly – but very far from completely – one telephone per person, a growing number of households have no fixed-line phone at all, and the surveyor does not know in advance what is at the other end of any call[2]. Even

2   Messer, Benjamin L., and Don A. Dillman, Using Address Based Sampling to Survey the General Public by Mail vs. 'Web plus Mail'. Report Prepared for The National Science

the three-digit area code that precedes an individual number in the United States is no longer even a reliable guide to where the phone holder is, as mobile telephone numbers have become portable. All of this is due to the widespread adoption of mobile telephones. As of the end of 2011, perhaps 30 percent of US households are now wireless-only, and a good-quality RDD survey must include supplemental cell-phone sample. This can be done, but cell phone interviewing has proven to be extremely expensive because reaching respondents and persuading them to participate in an interview at the moment is time-consuming and difficult. The Pew Research center estimates that a cell-phone only national survey would cost four times as much as a land-line survey, as an example[3]. Like telephone calls themselves, mobile interviews need to be very short if the interviewer is to continue to command the attention of a respondent. Mobile phone use expanded just as quickly in Europe as in the United States, and now a majority of households are "mobile-only" in a number of European nations.

There has been no satisfactory resolution to the question of what to do in the face of these developments. The Internet is an attractive mechanism for surveying individuals. It is also cheap, and the data become quickly available. Sophisticated images or video clips can be easily incorporated into the questionnaire, and respondents can easily be presented different material as a randomized experiment. However, no one has developed an adequate approach to creating anything resembling a representative population sample using the Internet. Almost every Internet survey you see is based on a self-selected convenience sample of unknown persons with computer access, primarily motivated – because they pay people a little to participate – to flip quickly through many questionnaires every month. One company, Knowledge Networks, tried to do so using an initial, national address-based survey. They offered the households they visited a business proposition: they would pay them to participate in internet surveys, and if they did not have a computer, the company would supply them with a free machine in return for their participation. This sounded promising, but it proved to be hugely expensive, and marketing companies (who sponsor most survey work) were not interested in paying for the quality data they could produce. At best, researchers now weight the self-reported demographics of people who respond to an Internet survey to approximate those of the universe of persons they hope to reach. A second problem with Internet samples is that their "locations" are completely

Foundation Division of Science Resources Statistics. Pullman, Washington: Social & Economic Sciences Research Center, Washington State University, 2010.
3 Keeter, Scott, «New Tricks for Old – and New – Dogs: Challenges and Opportunities Facing Communications Research», Philadelphia: Pew Research Center, 2009.

divorced from the cities or neighborhoods where respondents live and in which their experiences with crime are rooted[4].

The collapse of earlier survey methods has led to renewed interest in mail surveys, and they present a number of advantages. In the U.S., the post office's Delivery Sequence File can be purchased. It lists every functioning residential and commercial mail delivery point in the country. Mail surveys can be sent to each sample address quite cheaply, and they can affordably be re-mailed several times to increase response rates. With aggressive marketing, repeated re-mailings, and a cash incentive for completing the questionnaire, a researcher can hope for a 45 percent response rate, which is now better than many alternatives[5]. The respondents also include cell-phone-only households in reasonable numbers, although the results of mail surveys typically over-represent whites and persons with more education. In addition, mail surveys are being used to recruit respondents for Internet surveys or telephone calls, because they are at least getting into household mail boxes. Pre-notification letters have been demonstrated to increase ensuring telephone survey response rates. Exactly who fills out the questionnaire once it reaches the household is a problem, because the process cannot control respondent selection very effectively. Paper questionnaires are also a very clumsy technology when it comes to asking respondents to skip across ensuring questions based on their responses to earlier ones, and this is an extremely common feature of victimization surveys. In the past, mail surveys were criticized for achieving only modest response rates, but as telephone survey response rates degraded, they began to look competitive.

Another strategy for addressing the collapse of traditional survey research methods is to employ "mixed mode" samples, and develop survey questionnaires that can be administered in two or even three ways: by mail, over the web, by telephone, or in-person. The idea is that who is reached and who decides to participate in surveys conducted in one mode are different from those who are approached and respond via another channel. This can be seen in the demographics of respondents, although it is less clear that the groups differ markedly in the substance of what they have to say. Statisticians are working hard on the problem of combining the data resulting from samples with quite different characteristics, correctly implementing the different data weighting procedures that each mode requires, calculating meaningful overall response rates, and understanding how to make statistical inferences from the

4 Couper, Mick P. and Peter V. Miller, «Web Survey Methods: Introduction», Public Opinion Quarterly 72 (2008) 831-835.
5 Dillman, Don A., Jolene D. Smyth, and Leah Melani Christian, Internet, Mail and Mixed-Mode Surveys: The Tailored Design Method. Hoboken, NJ: John Wiley and Sons, 2009; Link, Michael W., Michael P. Battaglia, Martin R. Frankel, Larry Osborn and Ali H. Hokdad, «A Comparison of Address-Based Sampling (ABS) Versus Random-Digit Dialing (RDD) for General Population Surveys», Public Opinion Quarterly 72 (2008) 6-27.

data that include accurate confidence intervals[6]. But as each interviewing mode itself appears to be subject to declining response rates, that problem has not been solved.

The demise of traditional survey methodologies by the end of the 20th Century thus presents daunting challenges to 21st Century researchers. Because I do community surveys of victims and the general public, my most recent strategy is to return to address-based personal interviews. The key point – and the price that I pay for returning to this design – is that they must be very heavily clustered. I cannot afford to send interviewers here and there to conduct a single interview; rather, they must be turned loose for hours at a time in smaller areas, to knock on doors at many preselected but nearby addresses. They can easily return to unopened doors or unanswered buzzers while they work their sample list, because of the clustering. The modal American urban household now includes only one adult resident, so respondent selection can be conducted quickly. On the other hand, it also means it is harder to find anyone at home. For sampling, my strategy is to pick interviewing areas that are representative of identifiable population types or neighborhood type. For example, in Chicago I am examining the crime experiences of six groups: better-off and poor African Americans, affluent and working-class whites, and Hispanics living in new immigrant and more established communities. Together, these groups make up more than 90 percent of the city's population. First I clustered the city's census areas to identify the areas where these groups are concentrated, then samplers randomly selected residential addresses from the areas that best represent each of the six neighborhood clusters. The resulting data could be weighted to place each group in its correct proportion in the city, but many analyses compare and contrast these six groups separately, as they differ markedly in their experiences with crime and the police. The interviews must be kept short, plus the interviewers have a brief fallback version of the questionnaire that can be completed at the door if respondents are unwilling to let them into their home. A prepaid mail questionnaire can be dropped at addresses where no one is ever home; these do not pick up many respondents, but they would otherwise go completely unrepresented, and this is also inexpensive. Heavily clustered personal interviews are still significantly more expensive than the telephone surveys I began with a decade ago, but those days are gone forever.

6   Vehovar, Vasja, Ana Slavec, and Nejc Berzelak, «Costs and Errors in Fixed and Mobile Phone Surveys», In: Lior Gideon (Ed.), Handbook of Survey Methodology for the Social Sciences. New York: Springer Science+Business Media, 2012, 277-295.