

MEASURING VICTIMISATIONS RISK: THE EFFECTS OF METHODOLOGY, SAMPLING, AND FIELDING

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Introduction

As a resident of Chicago, I have suffered many criminal incidents. My raincoat was stolen on a wet afternoon, I was threatened while riding rapid transit, or a policeman asked me for a bribe to forget a traffic violation. All of these incidents occurred in the last five years. None was reported to the police. They are part of the "dark figure" of crime, those crimes that are never officially recorded as "crimes known to the police". Even when the police are notified, they may fail for political or administrative reasons to record all crimes that they know of. On the other hand, paradoxically, a successful police program to reduce crime may increase the official crime rate by increasing citizen notification or trust in the police.

The United States National Crime Victim Survey (NCVS) began in 1972 as a policy relevant complement to official statistics. With this project, the United States became a pioneer in surveying a population sample to derive a measure of victimisation that was independent of police reports. Each quarter year, a random sample of US households is surveyed about victimisation in the previous six months. The NCVS is one of the largest, longest and costliest continuing social surveys ever undertaken. In a typical year, 100,000 respondents in 50,000 households are interviewed. However, the size and cost of the survey and its complex fielding methodology limits its usefulness as a policy tool and make it unfeasible in other countries or in an international survey.

Still, many countries have followed the US lead, using methodologies and questions that are derived from the NCVS model. Each survey queries a random sample of the population asking if they have been a victim of crime over a specified time period. Victimisation questions have been especially similar in these surveys because of the common need in all of them to convert legal concepts into everyday ideas of criminal acts. Surveys of crime have been completed in many countries and several - the Netherlands, England/Wales, Israel, and Hong Kong - have fielded a series of surveys.²

In early 1989, the International Crime Survey (ICS) was completed in 14 countries of Europe, North America and Australia. Sample sizes were small and questions were limited to assessment of risk, notification of the police and a few attitudinal and behavioural responses. The survey's completion demonstrated the usefulness of a limited, inexpensive survey in assessing victimisation risk.

A second survey using the same sampling and fielding methods including a slightly altered questionnaire was administered in nine countries (six of the original

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² Block, R.L. (1992) "Comparing national surveys of victims of crime" *International Journal of Victimology*, pp. 1-20.

countries) in 1992. In addition, the basic International Crime Survey Questionnaire was adopted under United Nations sponsorship for use as a template for surveys in other countries. The diversity of countries and the quality of work under this uniform guide, but often in difficult conditions, is quite remarkable. The completion of this study in many developed and developing countries clearly demonstrates the widespread acceptance, validity, and usefulness of this project.

While the International Crime Survey is a useful and feasible complement to official statistics in many countries, its limits for measurement of victimisation risk must be recognised. The general problems of survey research - sampling and fielding techniques, non-response and selective response - limit the survey's usefulness for measuring and comparing risk of victimisation. However, assessment of risk is also limited by problems specific to retrospective surveys, problems specific to victimisation surveys, and problems unique to the ICS itself.

What is measured? Prevalence and incidence

Victim surveys are not an alternative but a complement to police records of crime. Even if victims reported every incident to the police, crime surveys and official reports would not measure the same thing. Even for the same crime, the coverage of incidents of victim surveys and police reports differ. Surveys (including the ICS) typically incorporate only individuals and households. Police reports include businesses and governments. Victim surveys are residence based. Police records are based on incidents. It is sometimes assumed that police reports are a random sample of all occurrences of victimisation. As I have shown elsewhere, they are not.³ In the United States, less serious and attempted crimes are much less likely to result in police notification than more serious or completed crimes. Many domestic assaults reported to the police go unreported in victim surveys. Many assaults reported in victim surveys are not reported to the police.

The International Crime Survey measures the prevalence and incidence of eleven types of victimisation and three sub types in the last year. The prevalence of these crimes is estimated over the past five years. Prevalence is the percentage of respondents or households that were victimised at least once in a time period. Thus, for example, 2.1% of all households in the 1989 wave of the ICS were victims of burglary with entry in 1988.⁴ Some households were burglarised more than once in 1988. The incidence rates measures multiple occurrences of the same crime. The incidence rate is the (number of incidents/number of households) * 100. It is usually higher than the prevalence rate (2.2 for burglary in 1988).

For some crimes such as burglary or car theft, there is little difference between incidence and prevalence. However, for personal violence, the difference between incidence and prevalence is large. Overall 2.5% of women were victims of at least one sexual incident in 1988 (Figure 1), but there were 4.9 sexual incidents per 100

³ Block, R.L. and C.R. Block (1980) "Decision and data: the transformation of robbery incidents into official robbery statistics" *The Journal of Criminal Law and Criminology* (Winter), 71:622-636.

⁴ van Dijk, J.J.M., P. Mayhew and M. Killias (1990) Experiences of crime across the world: key findings of the 1989 International Crime Survey, p.174, Kluwer Law and Taxation Publishers, Deventer, the Netherlands.

female respondents in the survey. Many women were victims of more than one sexual incident in 1988.

As illustrated in Figure 2, the difference between incidence and prevalence of personal violence is not constant across countries. In general, countries in which many respondents were assaulted or threatened at least once are countries where the differences between incidence and prevalence are highest (Australia, Canada, and the USA). For other countries there is no clear pattern of differences.

While the difference between prevalence and incidence for burglary is smaller than that for assault and threat, the pattern of cross national differences is the same (Figure 3). Countries with the highest prevalence level also have the greatest difference between prevalence and incidence. Official police statistics are typically based on incidents. A comparison of these to prevalence would be incorrect especially for crimes of personal violence.

In the ICS, incidence rates are only calculable for the last year. Prevalence rates are calculable for the last year, and for the last five years. We know the percentage of households that were burglarised in the last five years. We cannot calculate how many burglaries occurred.

General problems of survey research and the International Crime Survey

Sampling & fielding

The closer a survey approaches the random sampling ideal that everyone in the population has an equal and known chance of inclusion, the closer the survey will be to a true measure of the population. Surveys are always a compromise between costs and sampling adequacy. In countries with good telephone coverage, the ICS utilises random digit dialing plus weighting of some respondents to represent the nation. If respondents who lack a telephone are at greater risk than those with a phone, then this survey technique under represents victimisation risk. In the United States, both phone ownership and victimisation risk are inversely related to poverty.

In those countries in which fewer people have telephones, a variety of sampling techniques are used. The effect of lack of randomness in choosing a convenience sample of persons who happen to be in a particular place at a specific time or who are part of a quota sample of middle aged males on victimisation assessment is not known. It seems likely that deviations from randomness may result in an increase in measured victimisation risk because those persons who choose to participate may have a crime story to tell.

Non-response

The International Crime Survey has been plagued by vastly different rates of non-response. Response rates in the 1989 survey varied from 30% to 70% (41% overall). Response rates for the 1992 survey were generally higher, varying from 38% to near 100%, and an unknown percent in countries with no clear sampling frame. Killias has hypothesized that a low response rate will be associated with a high crime rate; only those respondents will agree to participate who have

something to report.⁵ However, he notes that the 1989 ICS did not confirm his hypothesis.⁶

Non-response is a difficult problem in the assessment of victimisation risk. In 1989, the US response rate was 37% and the prevalence rate for personal violence was higher than for any other country. In 1992, the United States had a fifty percent response rate, but rates of personal violence fell to levels comparable to other countries. Levels of personal violence both in the NCVS and in police statistics reached record levels in 1991. It is likely that the declining levels of the ICS are more a result of sampling changes than a measure of the prevalence of victimisation.

In countries with highly developed telephone networks, the ICS utilises CATI (Computer Aided Telephone Interviewing) techniques and Random Digit Dialing. In many countries face-to-face interviews are used. For the short surveys with relatively simple questions, the responses to a telephone interview are very similar to those in person questions. The NCVS has increasingly adopted telephone interviewing as a cost cutting measure. Experiments prior to the adoption of the less expensive method demonstrated little effect on the assessment of risk.⁷

Management of fielding is a key to the reliability of survey research. While all field work for the 1989 ICS was supervised by the same research firm, fielding management was not uniformly careful. Telephone interviewing can be more stringently supervised than in person interviewing, however, part of the widely differing levels of non-response in this project may have resulted from lack of adequate supervision. Sampling within a household may be affected by fielding supervision. If the person answering the telephone is interviewed rather than a randomly selected respondent, then the respondent is more likely to be female than male and less likely to be outside the house for work or recreation. These characteristics are all associated with risk of victimisation.

Internal and external telescoping and memory decay

In preparation for the National Crime Survey two important methodological problems, memory decay and telescoping were recognised as problems of retrospective surveys and especially crucial to assessment of victimisation risk.⁸ These problems essentially defined the methodology of the NCVS.

The NCVS solution to these problems is to create a panel of addresses, an absolute bound to reduce telescoping⁹, and a compromise recall period of six

⁵ Killias, M. (1987) "New methodological perspectives for victimisation surveys: lessons from Switzerland, National Crime Survey", The American Society of Criminology 39th Annual Meeting, (November 1987), Montreal, Quebec, Canada.

⁶ van Dijk et al., Experiences..., op. cit.

⁷ Roman, A.M. and G.A. Sliwa (1982) Final report on the study examining the increased use of telephone interviewing in the National Crime Survey (NCS), (Memorandum dated August 9, 1982), Bureau of Census, Washington D.C.

⁸ Biderman, A.D. and J.P. Lynch (1981) "Regency bias in data in self-reported victimization" Proceedings of the Social Statistics Section, American Statistical Association, pp. 31-40.

⁹ The difference between bounded and unbounded household is not absolute. A household is considered bounded if the address is bounded. However, over 3 1/2 years, occupants of many addresses change.

months.¹⁰ An address is maintained in the interview panel for 3 and 1/2 years. The first interview is used only for bounding. Interviews two through seven are referenced on the immediately preceding interview for crimes occurring in the last six months. Depending on the seriousness of the victimisation, prevalence rates of victimisation are 1.5 to 2.5 times as high for the first time NCVS respondent than a second time respondent. While the NCVS bounding technique rigorously addresses the known problems of retrospective surveys, it is extremely expensive, has its own problems, and represents a long term commitment that would be impractical for use in the ICS.¹¹

The designers of the ICS recognised the bounding problem. It is difficult to differentiate and count a series of crimes occurring over a long time period. In order to bound the survey, the respondent is first asked about victimisations in the past five years and then in more detail about more recent victimisation. Long term victimisation serves as a memory bound for crimes occurring in the last year. The ICS requires the respondent to remember events that occurred in the last five years and in the last year, and therefore problems of external and internal telescoping and memory decay place limits on the ICS method to assess risk.

- *External telescoping*

Victimisations occurring outside a time period are incorporated into the time period. The longer the recall period the less the chance of external telescoping. If respondents are asked about crimes occurring in their life time, external telescoping is impossible. If respondents are asked about crimes occurring in the last month, the likelihood of external telescoping is very high.

In the ICS, the respondent's recall of victimisations occurring in the last year or five years is bounded only by his/her memory. In the US, the NCVS treat similar questionnaires as unbounded and does not use them for making victimisation estimates.

Surveys in many countries question respondents in January or February about occurrences in the last year or last five years. Most external telescoping will occur at the earliest point of the recall period. Therefore in these surveys and in the ICS, respondents will bring incidents that occurred before the time period into it. In addition, crimes occurring after the reference period may also be brought into it. For example, respondents may include post New Year crimes as crimes occurring in the previous year.

- *Internal telescoping*

The surveys of new residents are considered to be bounded although they in fact are not as clearly indicated by the much higher levels of victimisation reported by these respondents in their first interview.

¹⁰ Murphy, L.R. and C.D. Cowan (1976) "Effects of bounding on telescoping in the National Crime Survey" in *The National Crime Survey: working papers (volume II: Methodological Studies)*; Cantor, D. (1985) "Operational and substantive differences in changing the NCVS reference period" Proceedings of the Social Statistical Section, American Statistical Association, pp. 128-137.

¹¹ Panel bias: the reduction in reported crimes with each re-interview was an unexpected problem created by the NCVS technique. Either behavioural changes or conditioning to the survey results in the number of crimes reported declining with each re-interview.

Just as respondents tend to telescope events occurring outside the five year time frame of the ICS into the most recent five years, they will also tend to remember crimes occurring more recently than they really did. Internal telescoping is the tendency in retrospective surveys to move events from the more distant past to the more recent past.

In a survey administered in January, respondents will tend to remember crimes committed in September or August as having occurred in October or November. Internal telescoping has no net effect on the five year estimate of victimisation risk in the ICS. However, it is likely that some victimisations occurring in the first four years covered by the questionnaire will be remembered as occurring in the most recent year.

Thus, the combination of external and internal telescoping in the ICS will tend to bring more victimisations than occurred into the five year span of the survey and within the span of the survey, victimisations that occurred in the earlier four years will be telescoped into the most recent year.

- *Recency bias (memory decay)*

A problem of all retrospective surveys is that more distant events tend to be forgotten. Recalled events will tend to cluster toward those most recent in time. More contemporary crimes are easily remembered, but those occurring even a few months earlier are often overlooked. The greater the length of a recall period, the greater the problem of recency bias. The less serious the crime, the more quickly it is forgotten. As a result, the longer the span of recall of a victimisation survey, the greater the recency bias (or memory decay) especially for less serious crimes. As Bushery has shown in the United States, more crimes will be reported in a three month recall than in a six month recall, and more in a six month recall than a one year recall period.¹² If Bushery's findings are correct for other surveys, then memory decay is a very significant problem in assessment of risk in the ICS.

It is impossible to separate a real upward trend in victimisation from recency bias and internal telescoping in the ICS. Memory decay, internal telescoping, and a real increase in levels of victimisation all have the same effect - to increase the proportion of crimes occurring in the most recent time period. The ICS methodology almost certainly results in a higher level of crime risk for the most recent year than actually occurred.

The joint effect of internal telescoping and memory decay and a real increase in victimisation are illustrated in Figures 4, 5, and 6. All three charts ask the same question: what percentage of those respondents who stated that they were victimised in the last five years were victimised in the last year. If all victimised respondents were victimised only once in the last five years and victimisation were stable, then we would expect that only 20% of victims would report an occurrence in the last year. However, some respondents who were victimised in the most recent year were also victimised earlier and the real rate of victimisation may have

¹² Bushery, J.M. (1981) "Recall bias for different reference periods in the National Crime Survey" Proceedings of the Section on Survey Research Methods, American Statistical Association, pp. 238-243.

changed. Thus, the actual percentage of respondents who report an occurrence in the most recent year should be higher than 20%.¹³

For victims from the six countries that were included in both waves of the survey, nearly forty-eight percent of the respondents who reported vandalism of a car from 1987-1991 reported at least one victimisation in 1991 (Figure 4). Similarly, forty-five percent of respondents who reported car vandalism from 1984-1988 reported being victimised in 1988. While some respondents may have been victimised repeatedly, it is unlikely that the over-representation of the most recent year is derived only from multiple victimisation and the increasing overall level of victimisation. It may also result from the forgetting of earlier crimes and from the internal telescoping of crimes from earlier years into the most recent year.

More serious crimes tend to be remembered more accurately. The proportion of victims of auto theft who report an incident occurring in the last year is much lower - 34% in 1991 and 27% in 1988. This more serious crime occurs less frequently and is probably more accurately placed in time than vandalism.

Figure 4 also demonstrates that the combined effects of memory decay, telescoping, and repeat victimisation tend to be about the same for specific crimes over time. For example, the one year proportion is high for sexual incidents both in 1988 and 1991 but low for burglary in both years. The proportion of victims reporting incidents in the last year increased for all crimes except theft from a car. If the tendency toward memory decay and telescoping change little over short time periods, it is likely that the actual risk of victimisation increased for most crimes between the two waves of the survey.

There is little reason to believe that telescoping and memory decay should have different effects in different countries. Figures 5 and 6 indicate that this is generally true. The proportion of respondents who indicate that a crime occurred in the last year is generally higher for assault and threat than burglary and within crimes and years this proportion does not vary greatly between countries. Thus, while these methodological problems may affect assessment of one year risk of victimisation, they probably do not effect comparison of the same crime between countries or over time.

Assessment problems unique to the International Crime Survey

The International Crime Survey has an ambitious mission. Its goal is to measure the impact of crime independently from police statistics in both developed and developing countries. The survey was designed to be policy oriented, inexpensive, timely, and comparative¹⁴. I believe it has largely accomplished its goals. However, the mission itself places limits on the survey's validity and reliability. Victimisation is a rare event. To accurately measure it, a large random sample of willing and trusting respondents is required.

¹³ The ICS does not ask respondents who were victimised in the most recent year, whether or not they were victimised in the previous four years. Therefore, we cannot differentiate between those respondents who were victimised only in the most recent year from those who were victimised in the most recent year and in earlier years.

¹⁴ The goals and limitations of the survey are clearly stated in the Introduction to the book by van Dijk et al., *Experiences...*, op. cit.

The requirements that the ICS be inexpensive, policy oriented, and timely required compromises in its design. The ICS goal of 1,500 randomly selected respondents per country is large enough for an accurate estimate of candidate popularity in a US political poll. However, it is low for a survey of an event so rare as burglary. In order to estimate the likelihood of victimisation for specific crimes that may occur to only one or two percent of the population (15 to 30 respondents), the closer the sample approaches randomness the better. For example, the ICS estimates that 2.4% of Dutch households suffered a burglary with entry in 1988. Two thousand respondents answered the survey, a sixty-five percent response rate. Of the 2,000 households, forty-six reported a burglary. A random change of eleven respondents would increase the burglary prevalence rate to 2.9% or decrease it to 1.8%. The random error of the estimate is high and effected in unknown ways by non-response. Therefore, the estimate can be accurate only in a broad range. Cross national comparisons must be made very cautiously.

The developers of the ICS hoped to be able to use uniform sampling and fielding techniques in all countries. They have not been able to achieve this goal. In many less developed countries, the sample is far from random. Several surveys utilise quota samples to represent the proportion of particular demographic groups but the quota of each demographic group may fail to represent the population in other ways. Others utilise a random walk methodology. Both of these techniques have been abandoned in more developed countries except for marketing research.

As a cross national survey, difficulties in sampling and fielding reflect the cultural and political situation in each country in which it is used. The subject matter of the ICS, victimisation and crime prevention, demand that the survey's sponsor be credible. Crime effects the everyday life of respondents. Many victims had earlier decided against police notification of their victimisation. Therefore, sponsorship must be credible enough to result in respondents describing events that they were earlier reluctant to notify the police about. In the first wave of the ICS, lack of credibility may have been responsible for some respondents refusing to participate. In some developing countries, respect for the government or the United Nations is low. Sponsorship by the government or the United Nations may hurt rather than promote credibility and reduce response rates.

In many developing countries, surveying is not so well matured as in the industrialised nations. For some respondents, the questionnaire format is so unusual that responses may be very inaccurate. The respondent is not well acquainted with the simple question response format of surveys. Respondents are asked to give short declarative answers to questions that usually require a long answer or a story rather than a check mark. On the other hand, in the West, survey research may be over-developed. Refusal rates are high because of over-saturation of surveys. Both over-saturation and inexperience with survey research reduce the accuracy of risk assessment in the ICS.

In order for the ICS to be completed at low cost with a relatively large number of respondents, the survey itself must be relatively short. The survey instrument is well designed to accomplish its goals in the shortest time possible. However, the ICS requires respondents to answer potentially embarrassing or revealing questions soon after the survey begins. The surveyors in several countries were hesitant to ask women about sexual incidents. Higher social class respondents often hesitated

to discuss security measures. The credibility built up by a somewhat longer survey might aid in responses to these questions.

The International Crime Survey as a risk assessment tool

The citizens of most developed, developing and Eastern European countries are enduring an increase in crime. Because many crimes go unreported to the police, their impact on the everyday life of most people is not measured. Even when police statistics are kept, they are often perceived to be unreliable or politically biased. Because of differences in police procedure and crime definitions, it is rarely possible to compare the impact of crime cross nationally. The ICS permits these comparisons.

The ICS is designed to measure victimisation and its impact on the citizens of a country. Yet the impact of victimisation at an individual level is almost unmeasured. It could be measured relatively inexpensively. Victimisation is a rare event, therefore the cost of finding each victim is high, the additional cost of questioning the victim about these rare occurrences is relatively low. This opportunity is wasted in the ICS. In future waves of the ICS, when a victim of robbery, burglary, or sexual assault is found, he/she should be questioned in more detail about the incident and its impact than the ICS allows.

The international acceptance of the ICS and the quality of the research that has been undertaken in many countries following its model are measures of its viability. The ICS provides a reasonable, cost effective, policy useful measure of crime's impact, and it allows for cross national comparison. As surveyors in developing nations acquire more experience in modern fielding and sampling technique, the ICS will come even closer to achieving its goals. However, the limits of the ICS for assessment of risk of victimisation should be recognised. It is a relatively small, retrospective survey, of rare events occurring over a long period of time. It is subject to the same problems of internal and external telescoping and memory decay as any retrospective survey. It has the comparison problems of any cross national survey, and it has estimation problems based upon small sample sizes. Its estimates of victimisation risk are accurate only within a broad range and comparisons across waves or nations must be made very cautiously.

Figure 1: Prevalence and incidents (1989 International Crime Survey)

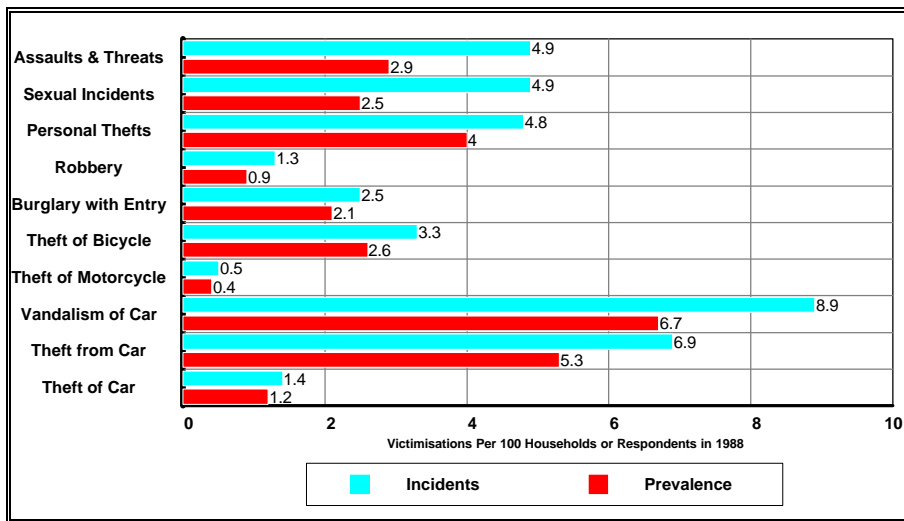


Figure 2: Prevalence and incidents - assault and threat (1989 International Crime Survey)

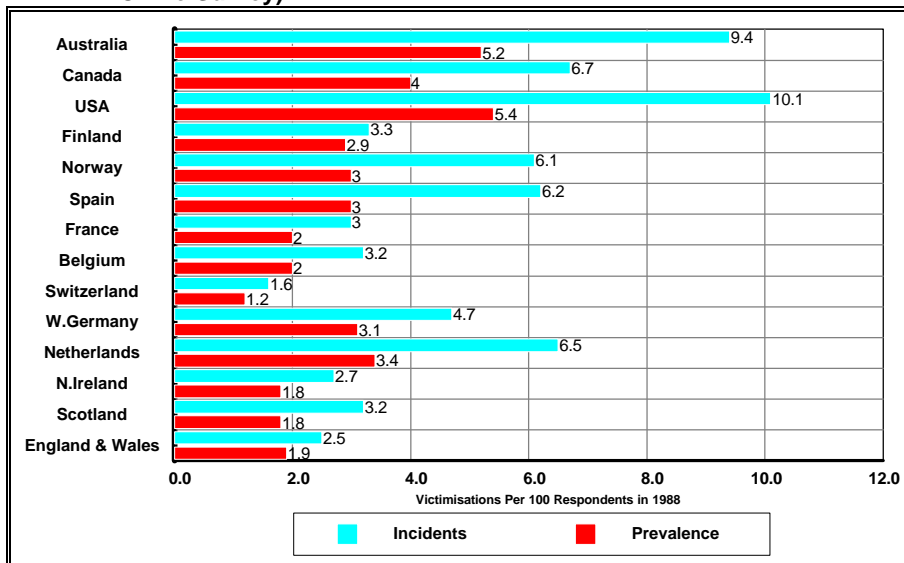


Figure 3: Prevalence and incidents - burglary with entry (1989 International Crime Survey)

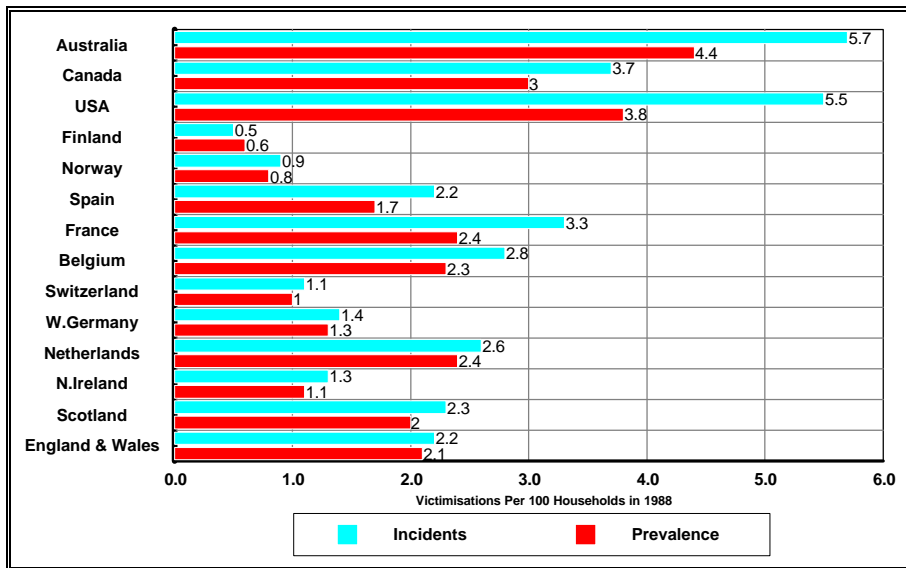


Figure 4: Memory decay, telescoping and repeat victimisation (International Crime Surveys 1989, 1992)

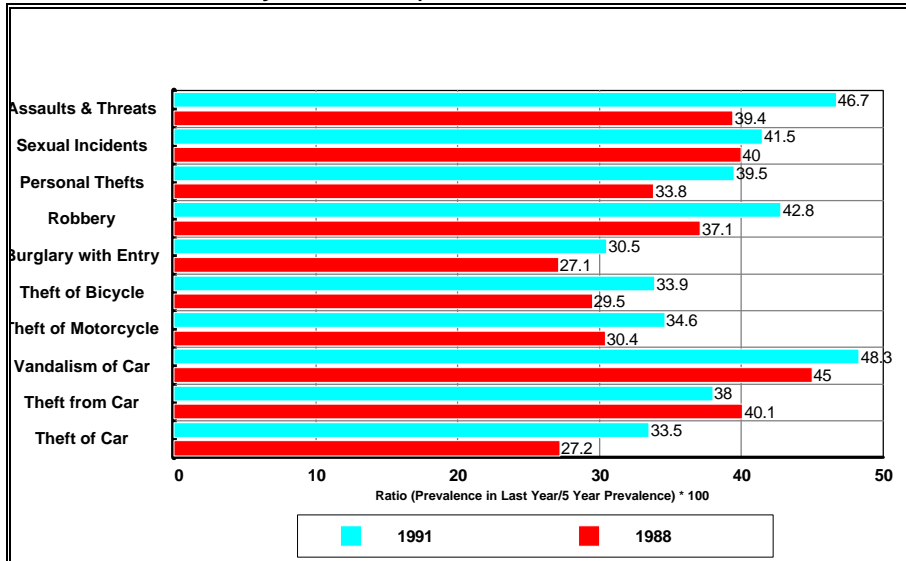


Figure 5: Memory decay, telescoping and repeat victimisation - assault and threat (International Crime Surveys 1989, 1992)

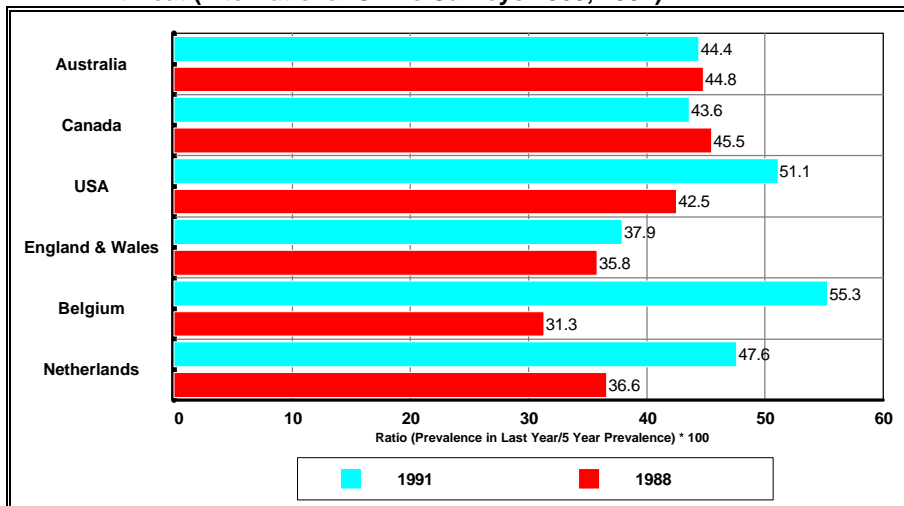


Figure 6: Memory decay, telescoping and repeat victimisation - burglary with entry (International Crime Surveys 1989, 1992)

