Though these works are rich and colorful in their descriptions of individuals, groups, or subcultures, problems of validity and reliability affect the generalizability of descriptive data. Emphasis in this chapter will be upon quantitative sources of crime statistics.

Review of Elementary Research Methodology

A review of elementary research methodology might prove beneficial prior to discussing crime data sources. To facilitate the reading of this and later chapters that review empirical tests of major theoretical propositions in criminology, the following methodological concepts will be considered:

- Independent and dependent variables;
- Correlation and causality;
- Cross-sectional and longitudinal research designs;
- Micro-level and macro-level analyses;
- Sampling;
- Research designs; and
- Validity and reliability.

Generalizability, validity, and reliability are key issues involved in all the social sciences. Research designs attempt to ensure that the work is sound enough so that its findings are not limited to the specific case or cases examined. For example, if we seek to know what causes crime, we could ask people we know why they broke the law. Such an approach will provide some information about why people violate the law, but will it allow us to make generalizations? That is, will it truly explain all criminal acts? In all probability, it will not. Will asking five friends why they drink alcohol even though they are under age provide an explanation of the causes of crime? Such simplistic approaches might strike you as humorous, but many persons base their understandings of crime on such unscientific “research.” No wonder so much confusion exists with regard to what to do about crime in society.

How then can the issue of crime causation be studied? First, there are different levels of explanation. The macro level attempts to explain crime rates while the micro level seeks to understand why individuals commit crime. Macro-level researchers, for instance, might attempt to interpret variations in homicide rates across time or societies, or differences between cities. In such work, the dependent variable, the thing to be explained, is homicide rates. The independent variable, the thing you believe explains the dependent variable, might be ethnic diversity or the...
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percent of the population living in poverty. Both the independent and dependent variables are measured in terms of a large social unit. The homicide rate usually refers to the number of murders per 100,000 people. Ethnic diversity would be measured in terms of the relative distribution of people identified as white, African-American, Hispanic, Asian, and other, while percent living in poverty would be the percent of the population living below the poverty line ($16,660 for a family of four in 1998). Notice, these three measures do not focus on any one person. Rather, they represent group-level information that can be obtained from the U.S. Census Bureau and from law enforcement records. The macro-level approach assumes that societal factors help to explain individual behavior. This approach will be discussed in greater detail in Chapter 7.

At the micro level, the purpose of research is to explain individual behavior and often involves a social-psychological approach. Instead of trying to explain variations in the homicide rate, a micro-level design would seek to interpret variations in individual behavior. Now the dependent variable would be murder, whether or not an individual committed this act. Independent variables would be individual income (thus allowing classification of an individual as being poor or not poor) and the individual's race. Micro-level measures of this type are usually obtained from individuals through interviews or questionnaires.

An important issue is the extent to which the research can be generalized: that is, can inferences be made beyond the immediate individual or place studied? Generalizability is achieved through sound research design and sampling procedures. Research designs can be considered blueprints that tell the researcher how to proceed, beginning with how units of analysis are to be selected for study.

Many of you are probably familiar with the classic experimental design in which there are two randomly selected groups, one that receives a treatment (the experimental group) and one that receives no treatment (the control group). Rarely can the experimental design be used in criminological research (due, in part, to ethical concerns, legal issues, logistics, and political reality). Other designs must be chosen that allow generalizations to be made beyond the particular group or individual. Evaluation research, for example, may utilize comparison groups (groups that are similar to the experimental group but which are not derived through random assignment). Large survey research efforts often invoke statistical controls in the attempt to generalize results. That is, researchers create comparison or control groups ex post facto, rather than in the initial research design.

Much of the early work in criminology and criminal justice relied upon cross-sectional research designs in which data are collected at one time point. Public opinion polls or voter preference polls are examples of surveys that interview a cross-section of people about their opinions on a specific topic.
**Longitudinal research** designs collect information across time. This allows for examination of historical changes. It also allows for establishing correct temporal ordering of variables, an important concern in testing criminological theory. Early self-report studies interviewed youths at one point in time and obtained information about their families, school performance, and their attitudes about a number of things. Simultaneously, the researchers collected information about the youngsters’ involvement in criminal activity during an earlier period. The researchers then used current attitudes (independent variables) to explain past criminal activity (dependent variable). This is temporally incorrect. The independent variable needs to occur prior to the dependent variable. Longitudinal research collects information at a minimum of two time periods. Independent variables are obtained in the first measurement and the dependent variable in the second.

**Highlight 3.1**

**Temporal Ordering**

Let us assume that we are interested in exploring the relationship between poverty and crime. A survey has been conducted in which respondents have answered the following two questions: "Are you currently employed?" and "During the past year did you break into a building to steal something?" Based on our analysis, we find that people who are unemployed are more likely to report committing a burglary. Now that we have found a correlation between these two variables, does this mean that unemployment causes property crime? No, if anything, these data would be more supportive of the conclusion that breaking into a building to steal something causes a person to lose their job; crime causes unemployment! This cross-sectional example shows the fallacy of asking questions about current statuses and inferring a causal connection to past behavior. To remedy the situation, the question could have been, "Were you employed last year?"

To make inferences beyond the specific subjects, some form of **probability** sampling method should be used (e.g., simple random, stratified, cluster). This means that every subject or case to which one hopes to be able to generalize has an equal probability of being selected for inclusion in the study. To be able to generalize about the difference in homicide rates between large and small cities, in the example above, the researcher would have to include small and large cities in the sample, and those cities should be drawn from a comprehensive list of all cities. This could be achieved by putting the names of all small cities (i.e., less than 250,000 population) into a hat and selecting five of them for study. Five
large cities (i.e., more than 500,000 population) could be similarly selected. This represents a stratified probability sampling procedure in which the population is divided into appropriate categories and then sampled within these strata. In this manner, the study results can be said to be representative of all cities included in the two strata. Simply selecting two cities out of convenience would not produce generalizable data that could necessarily be considered as representative of all small cities.

If, in our macro-level study, we find that cities with wide ethnic diversity and high rates of poverty have higher crime rates, can we conclude that these two variables cause crime? We cannot. Our finding would show that these independent variables are related to, or correlated with, homicide rates. Before we can conclude that they are a cause of the differences in rates, we would have to meet two additional criteria. First, the independent variables must have been measured at a time preceding the measurement of homicide rates. For something to be a cause of something else, it has to occur prior to the thing you are trying to explain. Second, other potential causal factors need to be controlled. Instead of ethnic diversity and poverty causing homicide, geographic location, unemployment, and availability of handguns might be the real explanation of different homicide rates. Without controlling for such potential variables, it is not possible to make causal inferences.

Thus, while there may be a correlation between two things, causality entails more than just establishing a relationship. Before it can be said that poverty causes crime, for example, three criteria need to be met: (1) it must be shown that the variables are correlated; (2) temporal ordering must be established (the independent variable must precede the dependent variable); and (3) rival or potential explanatory factors need to be controlled. Having reviewed these essential elements of research methodology, we turn our attention to crime statistics.

History of Official Crime Statistics

Knowledge about the extent and distribution of crime in the United States prior to the twentieth century was based primarily upon local arrest statistics, court records, and jail and prison data. There had been no systematic attempt to estimate the extent of crime in society at large. Thorsten Sellin, an early commentator on crime figures, cautioned against the use of court and prison records. He wrote that “the value of a crime for index purposes decreases as the distance from the crime itself in terms of procedure increases” (1931:346). Given the reliance upon arrest and trial statistics, no clear picture of the amount of crime in pre-twentieth century America can be formulated.