

The background of the book cover is a photograph of a coastal scene. The top half shows a clear blue sky with a thin layer of white clouds near the horizon. Below the sky is a calm body of water. In the foreground, there is a wooden pier or walkway with a railing, and a few people can be seen in the distance. The overall color palette is dominated by blues and whites.

# Applied Social Science Methodology

An Introductory Guide

**John Gerring**  
**Dino Christenson**



# Applied Social Science Methodology

## An Introductory Guide

This textbook provides a clear, concise, and comprehensive introduction to methodological issues encountered by the various social science disciplines. It emphasizes applications, with detailed examples, so that readers can put these methods to work in their research. Within a unified framework, John Gerring and Dino Christenson integrate a variety of methods – descriptive and causal, observational and experimental, qualitative and quantitative. The text covers a wide range of topics including research design, data-gathering techniques, statistics, theoretical frameworks, and social science writing. It is designed both for those attempting to make sense of social science, as well as those aiming to conduct original research. The text is complemented by practice questions, exercises, examples, key term highlighting, and additional resources, including related readings and websites. An essential resource for undergraduate and postgraduate programs in communications, criminal justice, economics, business, finance, management, education, environmental policy, international development, law, political science, public health, public policy, social work, sociology, and urban planning.

**JOHN GERRING** is Professor of Government at University of Texas at Austin. He is the author of many books including *Social Science Methodology: A Unified Framework*, second edition (Cambridge, 2012) and *Case Study Research: Principles and Practices*, second edition (Cambridge, 2017). He is also co-editor of the Cambridge series, ‘Strategies for Social Inquiry’.

**DINO P. CHRISTENSON** is Associate Professor of Political Science at Boston University and a Faculty Affiliate at the Hariri Institute for Computational Science & Engineering. His articles have appeared in *American Political Science Review*, *American Journal of Political Science*, *Political Behavior*, and *Social Networks*, among others.



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## **An Introductory Guide**

**JOHN GERRING**

University of Texas at Austin

**DINO CHRISTENSON**

Boston University



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# Abbreviations and Notation

Symbol	Description
$A$	Event or option
$a$	Y-intercept or constant of a regression equation
$\alpha$	Significance level (read as "alpha")
$  $	Absolute value operator
$ATE$	Average treatment effect
$ATT$	Average treatment effect on the treated
$B$	Event or option
$b$	Slope coefficient for independent variable (read as "beta")
$ $	Expression of conditionality
$CI$	Confidence interval
$Cov$	Covariance
$D_{ij}$	Distance from observation $i$ to $j$
$D_{Greedy}$	Distance from a greedy algorithm
$D_{Optimal}$	Distance from an optimal algorithm
$\Delta X$	Change in values of $X$ (read as "delta $X$ ")
$\Delta_i$	Causal treatment effect for individual $i$
$df$	Degrees of freedom
$\dots$	Expression of omission of values in a repeated operation (read as "ellipsis")
$e$	Error term or random component, usually of a regression equation
$E$	Expectation or expected value
$ESS_Y$	Explained sum of squares for $Y$
$exp$	Natural exponential function
$H_X$	Hypothesis about the effect of $X$ on $Y$
$i$	Individual or unit in the sample of observations, not $j$
$\perp$	Expression of independence
$j$	Individual or unit in the sample of observations, not $i$
$k$	Maximum number in a series of variables or coefficients
$M$	Mechanism or pathway connecting $X$ to $Y$
$MOE$	Margin of error
$MS_e$	Mean squared errors
$\mu$	Mean of a population or probability distribution (read as "mu")
$N$	Sample size or number of observations, but occasionally units or cases
$N_{Col}$	Number of cases in a column

(cont.)

Symbol	Description
$N_{ROW}$	Number of cases in a row
NA	Expression that value is not available, unknown or missing
$1 - \alpha$	Confidence level
$P$	Probability
$p$	P-value
$Pct_{Col}$	Column percents
$Pct_{ROW}$	Row percents
$\pi$	Constant value, approximately 3.14 (read as "pi")
$Prop$	Proportion
$Q$	Variable; the antecedent cause (to X) that may be used as an instrumental variable
$r$	Pearson's correlation coefficient
$r^2$	Coefficient of determination
$RSS_e$	Residual sum of squared errors
$S_{\bar{X}_1 - \bar{X}_2}$	Standard error of difference between means
$S_b$	Standard error of b
$s^2$	Variance of a sample
$s$	Standard deviation of a sample
$SE_e$	Standard error of the estimate
$\Sigma$	Summation operator
$\sigma$	Standard deviation of a population or probability distribution
$\sigma_{\bar{X}}$	Standard error of the mean
$\sigma^2$	Variance of a population or probability distribution
$SP$	Sum of products
$SS_X$	Sum of squares for X
$SS_Y$	Sum of squares for Y
$T_i$	Treatment condition for individual $i$
$Time_{1-N}$	Time-periods, usually referring to occasions when key variables are measured
$t$	T-ratio
$X$	Variable; usually an independent variable of causal interest
$\bar{X}$	Mean of X (read as "X-bar")
$X_C$	Control group condition, $X = 0$ when binary
$X_T$	Treatment group condition, $X = 1$ when binary
$X \leftrightarrow Y$	Expression that X causes Y and Y causes X
$X \rightarrow Y$	Expression that X causes Y
$X \text{ --- } Y$	Expression that X covaries with Y
$Y$	Variable; usually the dependent variable or outcome
$\bar{Y}$	Mean of Y (read as "Y-bar")
$\hat{Y}$	Predicted, fitted or estimated values of Y (read as "Y-hat")
$Y_i$	Outcome or effect for individual $i$

*(cont.)*

Symbol	Description
$Y_{iC}$	Potential outcome if $i$ does not receive treatment (i.e., in control group)
$Y_{iT}$	Potential outcome if $i$ receives treatment (i.e., in treatment group)
$Z$	Background factor(s) that affect $Y$ and may also affect $X$ , and thus may serve as confounder(s)
$z$	Z-score

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# Preface

Once upon a time, the practice of social science could be understood as the application of commonsense and intuition – something you might develop in the course of growing up. This is no longer true, or only partly true. Although commonsense and intuition are still useful, the social science disciplines have moved well beyond what can be understood without specialized training.

If you want to become an artist, musician, engineer – or pretty much anything, these days – developing your technique in these highly specialized areas is essential. It takes great dedication, countless hours of concentrated work, and professional guidance. The same may be said for social science in the contemporary era. One may mourn the death of the amateur social scientist. But one might as well reconcile oneself to the fact.

In response, methods courses have proliferated at both the undergraduate and graduate level. Likewise, methodological skills are in high demand in the social sciences and their cognate professions. Successful careers in government, communications, education, social work, business, law, and all of the policy fields require a solid grounding in methodology. Whether one is applying for graduate programs or for a job, the material covered in this book should stand one in good stead.

Indeed, a working knowledge of social science tools of analysis may prove more crucial for one's career than whatever substantive knowledge one acquires in the course of a college education. What one knows is less important than what one can *do*, and what one can do depends on a working knowledge of methodology.

These developments may be viewed as part of a broader sea-change, driven by the rise of computers and the Internet. With sophisticated IT tools at our disposal, factual knowledge about a subject is no longer at a premium and can usually be obtained from a Google search or from a specially designed database in milliseconds. Likewise, any repetitive procedure can be programmed as a set of algorithms on a computer. This means that the value of an education is no longer in the facts or established protocols you might learn. This sort of knowledge can be produced by machines in a more timely and accurate fashion than by the human brain. Our value-added, as humans, stems from our capacity to identify important questions and think through practical solutions to those questions in a creative fashion. This is the function of a broadly pitched course on methodology and it is what this text is designed to convey.

The present text is appropriate for use in introductory or intermediate methods courses at the undergraduate, master's, or doctoral level. It is designed to assist those who are attempting to make sense of social science as well as those who are

conducting original research. We assume no prior methodological knowledge, though we do presume that the reader has some background in at least one field of social science, e.g., anthropology, communications, criminal justice, economics (including business, finance, and management), education, environmental policy, international development, law, political science, psychology, public health, public policy, social work, sociology, or urban planning.<sup>1</sup>

We try to address key points of social science methodology in an applied fashion – so that readers can put these methods to work. Note that insofar as we can impact the societies we live in (in a conscious fashion) social science is indispensable. We can't enhance economic growth, health, and education – or reduce poverty, crime, conflict, inequality, and global warming – without consulting the work of social scientists. To understand that work, and to conduct original research on these topics, an understanding of the methodological principles underlying this set of practices is indispensable. We hope that you will approach social science methodology not simply as a means for self-advancement (though there is surely nothing wrong with that!) but also as a set of tools for changing – and preserving – the world.

## A Wide-Ranging Approach

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In many textbook markets the offerings are fairly similar. A standard format has been developed over the years that everyone adheres to (more or less), and the courses that utilize these texts bear a strong resemblance to each other. There is scholarly consensus in the field about how to teach a subject.

This does not describe the topic at hand. Gazing out across the social science disciplines one finds a wide range of methodological approaches, reflected in a wide range of textbooks. As a service to the prospective reader (and instructor) it may be helpful to indicate how this volume differs from other textbooks in this crowded field – and why.

Some methods texts limit their purview to a specific discipline, e.g., political science, sociology, or economics. This may seem reasonable, and it allows one to focus on a set of substantive problems that orient a field. However, few substantive problems are confined to a single discipline. In order to learn about crime, for example, you will probably need to read across the fields of sociology, psychology, law, political science, economics, and criminology. The same is true for most other problems, which do not observe neat disciplinary boundaries.

Of course, important differences in theory and method characterize the disciplines. But it does not follow that one is well-served by a text that offers only one view of how to conduct social science. A narrow methodological training does not prepare one to integrate knowledge from other disciplines. To understand the range of literature on a topic and to think creatively about methods that might be applied to that topic it makes sense to adopt an ecumenical approach. Hence, this book focuses broadly on the methodological principles of *social science* rather than on methods practiced within a single discipline.

Some texts are focused primarily on quantitative methods, i.e., statistics or econometrics. While these are important skills, this approach has a tendency to reduce methodology to mathematics. And this, in turn, presents a narrow and technical vision of social science that is not faithful to the way in which social science is practiced (or, at any rate, to the way it should be practiced). Statistics are the handmaiden of methodology, not the other way around.

Some texts are focused exclusively on qualitative methods. This is a hard topic to define, and these books are varied in their content and approach. A few are strongly anti-positivist, meaning that they reject the scientific ideal as it has been understood in the natural sciences. While we agree with the standard critique of a narrowly positivist approach to social science we also think the natural sciences and social sciences share a good deal in common. In any case, a book that treats only qualitative components of social science is missing a good deal of the action. Both qualitative and quantitative approaches are required as part of everyone's social science education. Certainly, they are both required in order to make sense of the social science literature on a subject.

One way to handle this problem is to include both qualitative and quantitative methods within a single text but to keep them separate, with the idea that the tools are distinct and each draws on a different epistemology (theory of knowledge). In our opinion, this claim is difficult to sustain: "qualitative" and "quantitative" tools tend to blend together and their epistemological traditions are not as far apart as they might seem. More important, a segregated approach to knowledge is not helpful to the advancement of social science. If knowledge on a topic is to grow it must be based on a unified epistemology that encompasses both qualitative and quantitative methods. This is the approach taken in the present text.

The most distinctive feature of this book is its wide-ranging approach to the subject. The text is intended to encompass all of the social science disciplines, qualitative and quantitative methods, descriptive and causal knowledge, and experimental and observational research designs. We also address the nuts and bolts of how to conduct research, as laid out below.

Naturally, there are some topics that we do not have time or space to engage.<sup>2</sup> However, relative to most methods texts this one qualifies as highly inclusive, offering an entrée to myriad aspects of social science methodology. To our way of thinking, these topics are all essential. And they are also closely linked. While there are many ways to do good social science these diverse approaches also share certain common elements. Only by grasping the full extent of social science's diversity can we glimpse its underlying unity.

## Outline and Features

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With a text of this size the reader may want to read strategically, focusing on chapters that are most relevant to your current work and interests, skipping or skimming chapters that cover topics about which you are already well-informed. A good textbook need not be read cover-to-cover.

However, readers should also be aware that the book is organized in a cumulative fashion, with later sections building on previous sections. Something may be lost if you peruse the text in a scattershot fashion.

Part I sets forth the basic *building blocks* of social science methodology. [Chapter 1](#) introduces our topic, social science methodology, expanding on themes in the Preface and introducing several specific examples that will be referred to throughout the book. Subsequent chapters within this section focus on (2) arguments (including theories and hypotheses), (3) concepts and measures, and (4) analyses.

Part II focuses on *causal* arguments and analysis. This topic is broken down into chapters dealing with (5) causal frameworks, (6) causal hypotheses and analyses, (7) experimental research designs, (8) non-experimental research designs, (9) case study research designs, and (10) diverse tools of causal inference.

Part III deals with the process of research and the presentation of results. This includes (11) reading and reviewing the literature on a subject, (12) brainstorming (finding a research topic and a specific hypothesis), (13) data gathering, (14) writing, (15) public speaking, and (16) ethics.

Part IV deals with statistics. This is divided into several topics: (17) data management, (18) univariate statistics, (19) probability distributions, (20) statistical inference, (21) bivariate statistics, (22) regression, and (23) causal inference.

Every effort has been made to divide up these subjects in a way that makes logical sense and to avoid unnecessary redundancies. Of course, topics do not always neatly divide into separate chapters and sections. There is a holistic quality to social science methodology; diverse topics invariably bleed into one another. To assist the reader, we indicate where the reader might look for further elaboration of an issue. You may also consult the Detailed Table of Contents or the Index.

An objective of the book is to introduce readers to *key terms* of social science methodology. When a term is first introduced, or when it is formally defined, it is printed in bold. At the end of each chapter the reader will find a list of these bolded terms, which may be useful for purposes of review. In the Index, we indicate the page on which a term is defined by printing that number in bold.

The online materials for this book include series of questions and exercises for each chapter under the heading *Inquiries*. These inquiries serve a review function, summarizing the main points of the chapter. Some questions are speculative, building on the material presented but also moving beyond it. Instructors may draw on these inquiries to structure class discussion, to construct quizzes or exams, or for assignments.

In posing questions and constructing exercises we are sensitive to the fact that readers of the book have diverse disciplinary backgrounds. Consequently, many of the inquiries are presented in a manner that allows for tailoring the questions to the reader's particular field of expertise. Rather than imposing a particular concept or theory on a methodological issue we might ask readers to choose a concept or theory with which they are familiar and employ it to address a question in their course of study.

An introductory textbook of modest length must deal with topics in an expeditious fashion. Accordingly, we have omitted many qualifications, caveats, and citations to the literature in favor of a streamlined approach. Although the treatment in this text is somewhat more detailed than that found in many textbooks it is still highly selective when placed within the context of scholarly work on these subjects. This is the cost of writing a short book on a long subject. Readers who choose to continue in some branch of social science should view this book as a point of departure on their methodological journey. The online materials include lists of suggested readings and web sites related to topics broached in each chapter, under the heading Resources. Consider these references as an invitation to further study.



# I Building Blocks

This part of the book is focused on fundamental elements of social science, elements that form building blocks for everything else. In [Chapter 1](#), we lay out the rationale for a unified approach to our subject, social science methodology. In [Chapter 2](#), we discuss social science arguments, with primary attention to descriptive and causal arguments. In [Chapter 3](#), we turn to the topic of conceptualization and measurement. In [Chapter 4](#), we discuss the generic features of empirical analysis.





## A Unified Framework

The purpose of social science is to make a difference in the world by applying reason and evidence to problems of general concern. Every question of social science relates (or *ought* to relate) to normative concepts such as justice, democracy, human rights, prosperity, happiness, or equality.

What distinguishes **social science** from casual conversation, journalism, or political rhetoric may be summarized as follows. First, social science involves the systematic application of reason and evidence to problems with explicit attention to method and to possible sources of error. Second, social science is accompanied by realistic estimates of uncertainty with respect to whatever conclusions are drawn from the evidence. Third, social science attempts to provide a comprehensive treatment of a subject within whatever scope-conditions are defined by the study. All relevant information should be included; none should be arbitrarily excluded. Finally, social science adopts a disinterested posture with respect to all goals except the truth. Its purpose is to get as close to the truth as possible, in all its complexity, rather than to provoke, entertain, elucidate moral truths, or advance polemical claims.

These features render social science less stimulating than other media, where there is generally a premium on brevity, accessibility, provocation, righteousness, or humor. Social science is a sober profession. However, for those excited by the prospect of getting it right, and willing to expend some energy to get there, the practice of social science may be highly rewarding.

Consider the problem of *crime*, a topic that often evokes hot rhetoric and strong opinions. Most media reports and political speeches offer little useful information about the prevalence of crime, its sources, and its potential solutions. Instead, they exploit the public's fascination with gruesome events and, in the process, provoke fear. From this perspective, the cold gaze of social science offers some relief.

Researchers have spent a good deal of time studying the rise and fall of violent crime in the United States and elsewhere. In the early 1960s, the United States enjoyed a low homicide rate of 5 murders per 100,000 inhabitants. Over the next two decades this rate doubled – to 10 per 100,000 inhabitants – peaking in the late 1970s or early 1980s, at which point the United States could claim the highest rate of violent crime of any advanced industrial country. Subsequently, the crime wave began to fall, and it now rests approximately where it was in 1960.<sup>3</sup> What factors might explain this extraordinary rise and subsequent decline?<sup>4</sup> What impact did

the rise-and-fall of crime have on attitudes (e.g., toward immigrants and minorities) and on behavior (e.g., voting turnout and party affiliation)?

Those who study crime cross-nationally also rely on murder rates to measure overall crime. Although cross-national statistics are prone to error, the greatest over-performers and under-performers are evident. At present, the highest violent crime rates in the world are found in Belize, Côte d'Ivoire, El Salvador, Guatemala, Honduras, Jamaica, and Venezuela – where there are 38–96 murder victims per 100,000 inhabitants every year. By contrast, murder rates in 25 countries are equal to, or less than, one per 100,000. This is an extraordinary range of variation, and it is only partly a product of economic development. Note that the murder capitals identified above are by no means the poorest countries in the world, and many relatively poor countries have murder rates of less than three per 100,000 – including Algeria, Armenia, Azerbaijan, Bangladesh, Bhutan, China, Egypt, Fiji, Iran, Jordan, Maldives, Micronesia, Nepal, São Tomé, Tajikistan, Tonga, and Vanuatu.<sup>5</sup> Another fascinating puzzle.

These questions are causal. But if we probe a bit we will quickly encounter issues of conceptualization and measurement. How shall we define criminal activity? Is murder a useful proxy for crime in general? What distinguishes murder from politically motivated acts of violence such as those accompanying terrorism or civil insurrection? (Is the Oklahoma City bombing, which claimed the lives of 168 Americans in 1995, a multiple homicide, or an act of domestic terrorism?) How has the definition of crime changed over time? How does it differ across countries or across regions within a country? How is crime understood within different communities?

These are the sorts of questions social science aims to address, and they are highly consequential. Improvements in our understanding of crime should help us to design better criminal justice policies. Does community policing work? Does cleaning up visible manifestations of lawlessness in a neighborhood (e.g., fixing broken windows) affect the crime rate in that neighborhood? How effective are deterrents such as harsh jail sentences or capital punishment? How effective is the alternative approach based on rehabilitation of convicted criminals? Do features of our educational system affect the propensity of children to engage in criminal activity? Is crime rooted in socioeconomic deprivation? How is it affected by different social policies? Do different policy solutions work in different contexts, or for different sorts of criminal activity?

Those interested in questions like these should also be interested in social science **methodology**. The reason is that complex questions elicit debate among scholars. To understand this debate – to see why researchers agree and disagree and to make a determination about which is most believable – one needs to understand the nature of the theories and the evidence employed to evaluate theories and test related hypotheses.

Of course, most citizens and policymakers do not spend a great deal of time reading social science. Instead, they read journalistic accounts of social science research. There is surely nothing wrong with this. At the same time, one must bear

in mind that newspaper articles and blog postings rarely explain the sort of background considerations that would allow one to informatively choose among rival conclusions about the same subject. This is not their fault; it is a limitation of the genre. The attraction of journalism is that it offers a brief account of a complex subject, suitable for consumption over breakfast, in the car, or on the train. If one wishes to go deeper – to read the reports upon which journalistic accounts are based – one must have a passing knowledge of social science methodology. (One would hope that journalists who offer pithy summaries of social science work also possess that deeper knowledge.)

Methodology should not be confused with a mastery of facts. While the latter is important, it is by no means sufficient to a determination of truth. Indeed, when experts disagree it is rarely over the facts of a case. It is, rather, over how those facts should be interpreted. An understanding of methodology involves an understanding of the logic of inquiry, i.e., the way in which one reaches conclusions from a body of evidence. This is what an informed consumer of social science must have if she is to decipher social science work on a subject.

For those who aim to become *producers* of social science the importance of methodology is even more apparent. Anyone who is dissatisfied with the field of criminology as it now stands would do well to design their own study. And designing such a study will require considerable training in the wiles of methodology if the result is to add anything to our knowledge of this complex subject. Methodology thus lies at the heart of contemporary political debates, providing the set of tools by which we might tackle social problems in a rational fashion.

## The Purpose of Unity

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This book embraces a broad view of social science. It encompasses work that is primarily descriptive as well as work that is primarily causal. It encompasses work that is experimental (involving a randomized treatment) and observational (i.e., non-experimental). It encompasses quantitative and qualitative research. It encompasses a range of strategies of data collection, from standardized surveys to ethnography.

The book is also intended to encompass a wide range of disciplines, including anthropology, communications, criminal justice, economics (and subfields such as business, finance, and management), education, environmental policy, international development, law, political science, psychology, public health, public policy, social work, sociology, and urban planning. Although these fields focus on different substantive problems, the methods they employ – and the methodological obstacles they encounter – are quite similar. Indeed, there is almost as much methodological diversity *within* a single discipline such as anthropology, sociology, or political science as there is *across* these disciplines.

Of course, there are many ways to do good social science. Sometimes, it makes sense to combine diverse methods in a single study – a **multi-method** approach to

research (see [Chapter 10](#)). In any case, much depends on the nature of the evidence available and the nature of the question under investigation. It would be folly to propose a uniform method or theoretical framework for all of social science, or even for a single discipline. Methods pluralism is easy to justify. Indeed, it is impossible to avoid.

However, beneath the diversity of methods there is (or at least ought to be) a degree of methodological consensus.<sup>6</sup> Note that if standards of truth are understandable only within the context of specific fields or theoretical traditions there is no way to adjudicate among contending views. Each truth becomes entirely self-reflective. Thus, while it is reasonable to cultivate a diversity of tools, it is unreasonable to cultivate a diversity of methodological standards. A discovery in sociology ought to be understandable, and appraisable, by those who are not sociologists; otherwise, it cannot claim the status of truth. Nor will it be of much use to anyone outside of sociology.

Moreover, as a matter of good scholarship, writers in the social sciences ought to be able to converse with one another. Economists interested in political economy should be cognizant of – and should seek to incorporate, wherever possible – work in political science. And vice versa. Even arguments demand a common frame of reference. Without such shared ground they are merely statements of position. Here, science degenerates into a chorus of yeas and nays reminiscent of *Monty Python's* “Argument Clinic” sketch.<sup>7</sup>

This is why the natural scope for the present volume is social science writ-large rather than a single field or subfield. Thinking about methodological topics in diverse settings forces us to think in new ways, to justify our choices on methodological grounds rather than on grounds of convenience or familiarity. It is not sufficient for sociologists to say that they do things in a certain way because that's what they have always done. Likewise for economists, political scientists, and the rest of our quarrelsome band.

Accordingly, this book aims to provide a framework that reaches across the social sciences, providing common ground for those engaged in diverse topics and diverse research methods. We have looked to uncover the shared norms that govern activity – implicitly or explicitly – in the community of social scientists. What makes a work of social science true, useful, or convincing (“scientific”)? Why do we prefer one treatment of a subject over another? These are the sorts of ground-level judgments that define the activity of methodology. With these judgments, we hope to identify the threads that tie our methodological intuitions together into a relatively unified framework across the disciplines of social science.

Our approach centers on the identification of basic *tasks* of social science, *strategies* enlisted to achieve those tasks, and *criteria* associated with each task and strategy. These are laid out schematically in tables throughout the book.

Note that each task and criterion is viewed as a *matter of degree*. Achieving precision, for example, is not an either/or proposition. One tries to obtain as precise an estimate as possible, in full knowledge that there will always be some element of imprecision (variability). The same goes for other tasks and criteria.

Note also that the tasks, strategies, and criteria laid out in the subsequent pages are sometimes in conflict with one another. For example, theories aim for both precision and breadth; however, achieving one may involve sacrifices for the other. Methodological *tradeoffs* of this sort are ubiquitous. This means that every task, strategy, or criterion must be understood with a *ceteris paribus* caveat. Precision is desirable, all other things being equal.

Although a relative and multidimensional standard may seem rather open-ended, this does not imply that anything goes. It means that the researcher must search for the theory and research design that maximizes goodness along a set of (relatively fixed) dimensions, reconciling divergent demands wherever possible. The goodness of a theory or research design is therefore judged only by reference to all possible theories or research designs that have been devised, or might be devised, to address the same research question. Best means *best possible*.<sup>8</sup>

This allows for all sorts of theories and research designs to enter the social science pantheon without shame or disparagement – but only if no better expedient can be found. It supposes that studies with weak theories or evidence answer a very difficult question: could an argument or research design be improved upon? What is achievable, *under the circumstances*?

If a research ideal is entirely out of reach – by virtue of lack of data, lack of funding sources, lack of cooperation on the part of relevant authorities, or ethical considerations – it is pointless to admonish an author for failing to achieve it. Perfection becomes the enemy of scientific progress. We must guard against the possibility that work adding value to what we know about a subject might be rejected even when no better approach is forthcoming. Standards must be realistic.

If, on the other hand, a better approach to a given subject can be envisioned and the costs of implementation are not too great, a study that chooses not to utilize that demonstrably better approach is rightly criticized. We must guard against the possibility that second-best approaches will drive out first-best approaches simply because the former adopt easier or more familiar methods. Mediocrity should not be the enemy of excellence. This is what we mean by *best possible, under the circumstances*.

Equally important is to embrace the uncertainty of our enterprise, honestly and forthrightly. Weaknesses in design and analysis should be openly acknowledged rather than hidden in footnotes or obscured in jargon and endless statistical tests. This is important not just as a matter of intellectual honesty but also for the long-run development of the social sciences. The cumulation of knowledge in a field depends more on methodological transparency than on “statistically significant” results.

## Examples

The following chapters intersperse abstract methodological points with specific examples. While these examples vary, we draw repeatedly on three subjects that

have played a key role in contemporary social science and in recent methodological debates: **worker-training programs**, **social capital**, and **democracy**. Readers who are unfamiliar with this terrain may use the following sections to acquaint themselves with these subject areas – though we do not pretend to offer anything like a comprehensive review.

While each has its disciplinary home turf – economics, sociology, and political science, respectively – it should be appreciated that these disciplinary categories are increasingly fluid. Economists, sociologists, and political scientists have worked on all three issue-areas. And these subjects are also important for cognate fields such as business, education, public policy, and social work. In this sense, our exemplars encompass the far reaches of social science.

Readers should also be aware that the three topics exemplify very different kinds of social science work. The first embodies a specific causal intervention – participation in a worker-training program – that operates on an individual level. We utilize this example frequently because many methodological principles are easier to discuss at the individual level. The other two topics embrace broader and more diffuse social and political institutions that are usually understood to operate at a societal level.

### Worker-Training Programs

Unemployment is a problem not only for those who find themselves without a job but also for society at large, which must bear the costs of supporting the unemployed (provided there are systems of relief, either private or public) and must bear the negative externalities brought on by unemployment (e.g., an increased tendency for criminal activity). The public policy question is how governments can best deal with this byproduct of capitalism.

One approach centers on worker-training programs. These programs enroll unemployed, or under-employed, persons with an attempt to boost their job-relevant skills. Programs may also seek to enhance morale and to educate participants in job-search strategies and workplace norms. Programs may be short in duration, or longer-term. They may be administered in conjunction with an apprenticeship. They may be accompanied by incentives for employers to participate. In short, there is great variety in the implementation of this category of social program directed at the unemployed.

The key question of interest is whether participation in such a program enhances a person's probability of finding a job or enhances their long-term earnings. Insofar as there may be such an effect, we wish to know why – that is, the mechanisms through which the causal effect operates. Is it because participants are more persistent in their search for work? Is it because they have better skills, better morale, or better workplace behavior? Is it because employers view participation in a program as a sign of motivation? Many explanations might be offered.

For present purposes, what bears emphasis are the methodological properties of this field of research. There is, first of all, a key concept – the worker-training program, which seems fairly clear in most settings but is actually rather blurry

around the edges. Does a one-day program focusing on advice for job-hunting qualify? How about a person who enlists government support to take classes at a community college? How about a program that emphasizes job placement with relatively little emphasis on training? There is, second, the hypothesis – that participation in such a program enhances employment and salary. There is, third, the theory, which concerns all the reasons that the hypothesis might be true (if indeed it is true).

## Social Capital

Our second example, centering on the concept of social capital, is considerably more complex. We shall define social capital as the benefits that derive from social networks that extend beyond family and clan. Where networks are intensive and extensive, societies should experience higher trust, lower crime, better public health, better governance, and as a result of these first-stage benefits, stronger growth. Likewise, individuals with more extensive networks should experience greater benefits (e.g., more economic opportunities) than individuals with circumscribed networks.

Indicators of social capital include membership in voluntary associations (e.g., unions, fraternal and sororal organizations, neighborhood associations, and clubs) and political engagement (e.g., voter turnout). These may be explored separately or combined in a single index.

Some years ago, Robert Putnam discovered that many indicators of social capital in the United States showed a marked downturn beginning in the 1950s, suggesting a deep and far-reaching decline in social capital.<sup>9</sup> (Similar patterns were found in some other advanced industrial countries, though not quite to the same degree.<sup>10</sup>) This spurred a good deal of hand-wringing about the state of the union, along with many social science studies. Some of these studies showed a mixed picture – decline in some areas but not in others, or a redirection of activity from some areas to other areas.<sup>11</sup> Another interpretation is that the decline is real but largely a function of the extraordinary high level of social capital found among members of the “greatest generation” – those who came of age in the 1930s and 1940s. From this perspective, the postwar decline represents a return to a normal level of social capital. The controversy has been difficult to resolve because most of the available measures of social capital stretch back only to the mid-twentieth century; thus, we have only a vague sense of the level of social capital existing in the United States prior to the 1940s.

Another set of controversies concern the *causes* of this decline. Are they the product of a general disenchantment during the turbulent 1960s, the entry of women into the labor force (pulling them away from social networking activities), migration, suburbanization, increasing diversity, or changing technologies (especially television and the Internet)?

Still another set of controversies concern the possible *effects* of this decline. At first, the decline of social capital was linked to a rise in the crime rate. The rate of

violent crime began to decline in the 1990s, however, casting doubt on a possible link between social capital and crime. The decline of social capital may also be linked to social and political instability, though evidence of such effects is thin. A third sort of effect may be decreasing concern for others, as manifested in lower public support for welfare programs intended to help less privileged members of society. Finally, one may conjecture that declining social capital imperils the willingness of citizens to support government, as manifested in anti-tax crusades and declining faith in political institutions.

Leaving aside various controversies that attend the “decline of social capital” thesis, let us take a moment to consider the possible impact of social capital on governance and economic development more generally. Putnam’s first book on the subject argued that differences in social capital between the northern and southern regions of Italy could account for differences in the quality of governance across the (well-governed) north and the (poorly-governed) south.<sup>12</sup> Specifically, where reciprocity-relationships were extensive and social trust was high this boosted the quality of government. Where social networks were limited to the extended family and social trust was low, as it seemed to be in the southern regions of Italy, it was difficult to establish effective government. This had repercussions for growth and that is why, Putnam reasoned, we see a prosperous north and a much less prosperous south. One can also hypothesize that there might be direct effects from social capital to growth.<sup>13</sup> For example, where networks are limited and trust is low, markets are more difficult to maintain, competition is likely to be limited, and transaction costs will be high. Indeed, scholars have argued that the strength or weakness of social capital is a key to long-term patterns of development around the world.<sup>14</sup>

In recent years, proponents of social capital have confronted the apparent fact that there are “good” and “bad” sorts of social capital. It is often noted that gangs are a voluntary network of individuals who prey on society. Likewise, neighborhood associations sometimes form in order to exclude social groups deemed threatening to the community. At the extreme, race riots may be understood as an expression of social capital. Indeed, Weimar Germany, which spawned the xenophobic ideology of Nazism, was a society rich in extra-familial social networks.<sup>15</sup> In response, theorists now distinguish between “bonding” and “bridging” social capital. The first relates to social networks among people who are similar to each other – ethnically, socioeconomically, and so forth. The second refers to social networks that reach across social divides. The claim is that these two types of social capital have divergent effects on a variety of outcomes. In this fashion, a significant modification of the original theory is introduced.

Of course, these matters are complicated. What we have offered above is a brief review of a large and complex literature. Our purpose is not to represent the entirety of these debates but merely to illustrate several key elements of social science argumentation. Note, first, the key concept, social capital, and various indicators that have been used to measure it. Note, second, the descriptive

hypothesis that social capital has declined in recent decades in the United States (and perhaps elsewhere). Note, finally, various hypotheses about the causes and effects of that decline and theoretical expectations about why (i.e., the mechanisms by which) social capital might lead to enhanced governance and economic development.

## Democracy

Democracy refers generally to rule by the people. Below this level of abstraction, there is great debate about how to best define this key concept. Most definitions include the idea of electoral contestation. That is, in order to be considered democratic a polity must allow free and fair elections with a broad electorate; those elected must be allowed to take office; and elective bodies must not be constrained by unelective bodies such as a military tribunal or monarch. Additional attributes such as constraints on the exercise of power, civil liberty, political equality, deliberation, and full participation might also be included in a definition of this key concept.

There are a variety of cross-national indicators of democracy. However, most of these empirical measures focus on the electoral component of the concept, as set forth above. Most also regard democracy as a matter of degrees, stretching from autocracy (i.e., dictatorship, authoritarian rule) to full democracy. This includes the widely-used indices produced by Polity (“Polity2,” a 21-point scale) and Freedom House (“Political Rights,” a 7-point scale).<sup>16</sup>

Sometimes, however, it is important to divide up the world of polities into those that are (predominantly) autocratic and those that are (predominantly) democratic. The most widely employed binary indicator (0 = autocracy, 1 = democracy) is the Democracy–Dictatorship (DD) index developed by Adam Przeworski and colleagues.<sup>17</sup> Accordingly, a regime is a democracy if leaders are selected through contested elections. To operationalize this conception of democracy the authors identify four criteria:

- 1 The chief executive must be chosen by popular election or by a body that was itself popularly elected.
- 2 The legislature must be popularly elected.
- 3 There must be more than one party competing in the elections.
- 4 An alternation in power under electoral rules identical to the ones that brought the incumbent to office must have taken place.<sup>18</sup>

All four conditions must be satisfied in order for a polity to be considered democratic.

With respect to democracy, it is helpful to distinguish several sorts of research questions. First, what is the empirical pattern of democratization throughout the world? Samuel Huntington discerns three democratic “waves” in the contemporary era – the first beginning in the early nineteenth century, the second after the

conclusion of World War II, and the third beginning in the 1970s.<sup>19</sup> Criticism of this account centers, first of all, on Huntington's definition of democracy. If it is broadened to include female suffrage and informal impediments to suffrage for males (e.g., "Jim Crow" laws in the American South), historical patterns of democratization look rather different.<sup>20</sup> A second issue concerns the denominator – the total number of countries under examination. Conventionally, these are defined as sovereign nation-states. However, it will be noticed that the number of sovereign states expands rapidly over the observed period, especially in the 1960s when most of Africa was liberated from colonial rule. This means that an apparent downturn in the rate of democracy may be due to a statistical artifact: the momentary increase in the number of countries considered as part of a global sample.<sup>21</sup> A final issue concerns how to regard the concept of a "wave." Does it refer to changes in the global level of democracy (as measured by Polity, for example), to net-transitions to democracy, or to linkages among cases of democratization (diffusion)?<sup>22</sup>

Causal questions begin with democracy's rise. What might account for the pattern of democratization that we see across the world over the past two centuries? Structural (distal) explanations are grounded variously in geography, colonial history, religion, ethnicity, modernization, and particular types of authoritarian rule. Proximate causes include features of the transition itself such as whether liberalization (civil liberties, constraints on executive power) occurred prior to an electoral opening or whether a pact was established among important political players. None has been conclusively established.<sup>23</sup>

A separate set of causal questions concern democracy's causal effects. Does a transition (or improvement in the quality of democracy) bring with it improvements in the quality of governance (e.g., less corruption, more provision of public goods)? Does it foster higher levels of education, health, and infrastructure, or greater equality across the sexes and across ethnic groups within a society? These outcomes might be summarized in the phrase, does democracy bring development? Again, we find vast disagreement.<sup>24</sup>

A somewhat separate question concerns whether regime-type influences the conduct of foreign policy. According to the well-known theory of the democratic peace two countries that are democratic should never fight wars with one another.<sup>25</sup> A softer version of this thesis interprets the matter probabilistically: two countries that are democratic are less likely to fight wars with each other than any other pairing of countries.

Again, it must be stressed that our purpose is not to offer a comprehensive overview of this immense subject but simply to display some of the methodological properties of the debates that occur around the subject. In particular, we have outlined debates over the key concept (democracy), various indicators for that concept (including Polity, Freedom House, and DD), an influential descriptive account (Huntington's three waves of democratization), and two general causal questions, one pertaining to the causes of democratization and the other to its effects.

## CONCLUSIONS

The examples introduced above were chosen because they are prominent and also highly contentious. Scholars have differing views of the definition and measurement of key concepts, the descriptive features pertaining to the phenomenon, and/or the causes or effects of that phenomenon. This is especially the case for social capital and democracy, and somewhat less so for worker-training programs.

Some may feel that these ongoing debates are an indication of the weakness of social science – its failure to reach closure, even with questions as old as democracy. While this is certainly an abiding characteristic of social science one must also bear in mind that our difficulties in reaching consensus arise primarily from the nature of the problems themselves. If we were to choose simpler problems we would no doubt arrive at greater consensus with respect to their answers. Indeed, the simplest problem among our three examples – worker-training programs – is also the one that has garnered the greatest scholarly consensus.

It is not clear that society would be better served if social science narrowed its focus to tractable questions, ignoring the macro-level features that – presumably – operate over long periods, at macro levels, and sometimes beneath the surface of social life. This includes social capital and democracy, along with other similarly diffuse topics.

In any case, we hope that these examples serve as an invitation to our topic – social science methodology. For, it is only by understanding the methodological properties of these topics that we can hope to understand these debates – and, perhaps, over time, to attain greater consensus.

## KEY TERMS

- Social science
- Methodology
- Multi-method
- Worker-training programs
- Social capital
- Democracy