MODELS, NUMBERS, AND CASES

Methods for Studying International Relations

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1. Introduction: Methodology in International Relations Research

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Studies of international relations try to explain a broad range of political interactions among countries, societies, and organizations. Whether studying war and peace or exploring economic cooperation or environmental conflict, research on international politics requires a systematic approach to identifying fundamental processes and forces of change. In response to increased economic interdependence and other profound changes in the international system during the last few decades, the analysis of international relations (IR) has expanded in three main directions. First, scholars have tackled new issues, including international environmental politics, international ethics, and globalization. Second, new methods have emerged (e.g., two-level game analysis and spatial analysis), and the scope of methodologies has broadened to include greater use of rational choice models and statistical methods. Third, scholars have become increasingly specialized both in their respective subfields and in their use of various methodologies. These developments have undoubtedly enriched IR research by drawing attention to additional areas of study, such as compliance with international treaties and the explanation of civil wars, and by changing how researchers analyze these subjects.

At the same time the combination of new research themes, greater methodological diversity, and increased subfield specialization has overshadowed common methodological concerns among IR scholars. While general courses on research methodology are now standard in the political science curriculum at both the advanced undergraduate and graduate lev-
els, specific treatments of methodological problems in the analysis of international relations are still comparatively rare. This volume aims to fill this gap by presenting theoretical and empirical studies that address central methodological issues as they have emerged in substantive subfields of international relations research. The authors explore the application of three methods of research—case studies, quantitative analyses, and formal methods—to the study of international political economy, international environmental politics, and international security. The authors also discuss how these methods have influenced key debates in international relations such as whether and why democratic countries are unlikely to fight each other.

Following many years of debate on which method is best for studying international relations, this book is written in a very different spirit. It argues that a serious dialogue across different methodological approaches and subfields will generate a better understanding of the advantages and limits of different methods and will lead to more fruitful research on international relations.

Leading scholars of the field have elaborated on the need for a more robust discourse on methodology in international relations. Two former presidents of the International Studies Association, Michael Brecher and Bruce Bueno de Mesquita, have recently attempted to stimulate such a dialogue. In his 1999 presidential address to the International Studies Association, Brecher stated that the field must become more tolerant of competing paradigms, models, methods, and findings. He emphasized the importance of both cumulation of knowledge and cross-methods research. Bueno de Mesquita outlined the comparative advantages of the three major methods used in international relations (case study, quantitative, and formal methods) and suggested that “scientific progress is bolstered by and may in fact require the application of all three methods.”

This book offers a unique combination of an introduction to these three methodological approaches and an examination of their application to substantive research in international relations. It emphasizes the merits of employing case study, quantitative analysis, and formal methods in IR research and the trade-offs involved in using each method. Each method is first introduced, then followed by separate chapters illustrating the application of the particular method to three subfields of international relations: international political economy, international environmental politics, and international security.
Introduction

These subfields were chosen for several reasons. International security has been at the heart of the traditional study of international relations and remains a core subfield. Some of the main intellectual challenges in the study of international relations center on international security, beginning with the study of war and its causes at the individual (leader), state, and international system levels. Over the past half century, scholars have expanded the range of questions in security studies to include analysis of nuclear deterrence, civil wars, international alliances, and the effects of different types of domestic regimes on the likelihood of engaging in war (the democratic peace thesis).

International political economy (IPE) is another central subfield of international relations. Much current scholarship on international politics deals with questions of international political economy, including the politics of international trade and monetary relations. Many studies in this field focus on foreign economic policy-making, but broader definitions of the field also include the study of international institutions and cooperation. International political economy has been at the center of the modern study of international relations owing largely to the growing importance of economic interactions among countries and to the flourishing global economy since the end of World War II.

International environmental politics is a relatively new subfield that has emerged with the growing importance of global and transboundary environmental issues including climate change, transboundary air pollution, and threats to the world’s biodiversity. Its significance derives from the possibility that perfectly routine human activities now have the potential to destroy the basis of life on a global scale. Students of the field seek to explain the behavior and motivations of both traditional participants in policy-making, such as governments and international organizations, and nontraditional players, especially the burgeoning number of international nongovernmental organizations who now play a prominent role in international environmental politics. Given the emerging status of this field, a timely discussion of methodological problems and lessons from other fields can facilitate a more coherent research agenda.

Theory and Methodology

There are three main issues that can help to evaluate the intellectual progress of an academic field. The first issue is the set of empirical phe-
nomena and questions being studied; the second issue is the state of theoretical development; and the third is the methodology used to form theoretical claims and test their empirical implications. This book focuses on the issue of methodology, but also addresses the question of how methodology informs both theoretical and empirical debates. The links between theory and methodology are complex and require some elaboration.3

Theory is defined by the *American Heritage Dictionary* (1985) as

systematically organized knowledge applicable in a relatively wide variety of circumstances, esp. a system of assumptions, accepted principles, and rules of procedure devised to analyze, predict, or otherwise explain the nature or behavior of a specified set of phenomena.

Theory provides clear and precise explanations of important phenomena. It focuses scholarly attention on puzzles that set the research agenda for students of the field. Ideally, theory should also offer a set of testable and falsifiable hypotheses, thus encouraging systematic reevaluation of its main arguments through different research methods.

Methodology refers to systematically structured or codified ways to test theories. Methodology is particularly useful in the context of a progressive research program where hypotheses lend themselves to falsification. Given a range of assumptions about the properties of actors and their interactions, various hypotheses can be deduced and, ideally, corroborated—or rejected—by empirical case studies or in quantitative research. Methodology can also help expand the scope of received theories. For example, game theory offers additional insights into strategic interactions between players. Formal models can also be used to examine the internal validity of theories (see chaps. 10, 14).

Theory and methodology are most beneficial when they accompany each other for the advancement of knowledge. While theory provides explanations for particular phenomena based on specific assumptions, purely axiomatic knowledge, turned into theories, is rarely useful in explaining “real-world politics.” Theoretical arguments have to be augmented with systematic methods of testing that help guard against chance and selection bias. Besides formal models, it is mainly case study research that can generate new hypotheses to advance theory building. Both case studies and quantitative methods are often used to test propositions. Carefully crafted research designs permit the assessment of regularities between variables,
detect their limitations (e.g., scope of the relationship in time and space), and point to the possibility of generalization and replicability of the findings.

Political methodology has undergone many changes over the last century. King (1991) offered a five-part history of political methodology during the twentieth century. He describes how research was first based on direct empirical observations; subsequently, the “behavioral revolution” of the mid-1960s led to a sharp increase in empirical-quantitative analyses as large data sets became available in the late 1960s and 1970s. In the late 1970s and 1980s, political scientists borrowed quantitative and formal methods from other disciplines, especially economics. Finally, since the 1980s political science methodologists have improved existing methods and developed new tools specifically geared to answering political science questions.

The history of quantitative studies in international relations resembles that of political science at large, but since the 1970s case study methodology has also proliferated in international relations, particularly in studies that reach into the comparative politics field. In addition, the growth of rational choice approaches first in economics and subsequently in political science has now had a marked impact on the study of international politics. Since the 1980s, both mathematical models and rational choice approaches have contributed to the development and refinement of central ideas in the field such as hegemonic stability theory and the democratic peace (Goldmann 1995; Wæver 1998). During the 1980s and 1990s, constructivist, poststructuralist, and postmodern approaches to international relations also emerged, although it remains debatable whether these approaches actually have developed a methodology of their own.

In order to gain more insight about the prevalence of different methodological approaches in international relations, we surveyed all articles published in several leading journals in the field between 1975 and 2000. The survey included articles published in the American Political Science Review, International Organization, International Security, Quarterly, the Journal of Conflict Resolution, and World Politics (see fig. 1).

The articles were classified into five categories:

1. Descriptive analysis
2. Case studies
3. Quantitative (statistical) analysis
The broad trajectory over the period between 1975 and 2000 (grouped as five-year intervals with the exception of the most recent group which comprises six years) demonstrates important methodological trends in international relations. The most profound trend evident in figure 1 is the continuing decline in the number of articles using a descriptive-historical approach. While in the late 1970s about half of all the articles published in these journals lacked any methodological component, in the late 1990s less...
than one-third of the articles surveyed could be classified as such. This trend reflects an important development in the way IR scholars conduct their research, and it supports the notion that international relations as a field has become more methods-oriented than before. In particular, *International Studies Quarterly*, *International Security*, and *World Politics* all currently publish significantly fewer articles that pursue a descriptive-historical approach than twenty-five years ago. For instance, during the late 1970s over 70 percent of the articles published in *World Politics* applied a descriptive or historical approach, while in late 1990s this ratio declined to less than 30 percent. Another interesting finding is the fairly constant frequency of articles using case studies, which has remained roughly steady at around 13 percent throughout the last quarter century.

In contrast, there has been a sharp increase in the number of articles using quantitative, formal, or a combination of both methods. Among articles published in the surveyed journals, the proportion of statistical studies rose from 26 percent during the late 1970s to 43 percent during the late 1990s. This trend is most pronounced in *International Organization* and *World Politics*. Edward Mansfield found a similar increase in the frequency of statistical analysis in articles on international political economy (see chap. 7, this vol.). It is remarkable that close to half of all articles recently published in these six prominent journals used quantitative methods of research. This trend reflects the growing importance IR scholars place on systematic analysis of political precesses and world events. This trend can also be partly explained by the greater availability of data sets and methodological training of graduate students.

Overall, the number of articles using formal methods increased from less than 9 percent during the late 1970s to 14 percent in the late 1990s. While *International Organization*, *International Studies Quarterly*, and *World Politics* all currently publish more articles using formal methods than they did twenty-five years ago, the rate of increase is greatest in journals that have traditionally published more quantitative work, specifically the *Journal of Conflict Resolution* and the *American Political Science Review*. Game theory is becoming more influential in the study of international politics although articles using formal methods still constitute a relatively small portion of IR publications (on par with case study analysis).

The survey of these leading journals also shows that few scholars in the field employ multimethod research. Less than 4 percent of all articles pub-
lished during the late 1990s in the journals surveyed combined two methodological approaches. Cross-method analysis obviously requires more training (or alternatively, cross-field collaboration). However, it allows scholars to investigate alternative explanations, compensate for weaknesses in each of these methods, and corroborate research results.

**Plan of the Book**

The book is organized around three methodological approaches to the study of international relations: case studies, quantitative analyses, and formal methods. Each methodological part begins with an introductory essay that presents an overview of the method and explains its advantages and its limitations. The introductory chapter is followed by several chapters that focus on applications of the respective method in different subfields of international relations, namely, international political economy, international environmental politics, and international security. These chapters evaluate the contribution of the various methods to central debates in the field and to theory building. They do so by discussing the literature and elaborating on specific methodological issues. Table 1 details the structure of the book and the authors of the respective chapters.

The chapters are united in their emphasis on exploring common methodological concerns and providing a critical evaluation of central ideas from a methodological perspective. Each chapter also offers a list of five studies for further reading. The conclusion, titled “Methodological Pluralism,” discusses problems that are common to different methods and addresses in more detail cross-methods research. Reading the book in its entirety will provide the readers with a comparative perspective on the application of different research methods across subfields of international relations. The book can also be read more selectively as each chapter stands on its own merits; in addition, the book can be read by methodological part or by substantive field. For instance, readers can choose to focus on how a particular method has been applied in several subfields of international relations. This focus on a particular method may be more useful for classes on research methods (reading by row in table 1). Alternatively, readers interested in a particular subfield can compare how the different methods have been applied in that particular field (reading by column). Such reading of the book is most useful for classes in a particular subfield; for instance, students in a class on international political economy will
benefit from reading about the application of the three different methodological approaches in their subfield. Finally, an introductory course may choose to use the first chapters of each part to obtain an overview of each method, together with a sampling of the applications chapters tailored to the focus of the course.\(^8\)

The first part of the book examines the application of case study methods to the analysis of international political economy, international environmental politics, and international security studies. The introductory chapter by Andrew Bennett reviews both the design and application of case study methods in international relations research (chap. 2). Bennett explains the logic of various case study methods and shows how different designs can contribute to the development of contingent generalizations or “typological theories.” He illustrates how to choose between case study methods on the basis of their relative strengths and weaknesses. Bennett argues that case studies, when developed to their full potential, can aid in the generation of new theories. The chapter also provides guidance about the criteria to use for selecting cases and deciding on the number of variables to be studied. Bennett concludes by stressing the complementary nature of case study methods, statistical analysis, and formal methods.

Following the introductory chapter on case study methodology, John Odell reviews the intellectual development of case study analysis in the subfield of international political economy (chap. 3). The chapter discusses various forms of single case studies, including the “method of difference,”

**TABLE 1. Organization of the Book**

<table>
<thead>
<tr>
<th>Methodological Domain</th>
<th>Introductory Chapter</th>
<th>International Political Economy</th>
<th>International Environmental Politics</th>
<th>International Security</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part I: Case Study Methods</td>
<td>Bennett (chap. 2)</td>
<td>Odell (chap. 3)</td>
<td>Mitchell and Bernauer (chap. 4)</td>
<td>Kacowicz (chap. 5)</td>
</tr>
<tr>
<td>Part II: Quantitative Methods</td>
<td>Braumoeller and Sartori (chap. 6)</td>
<td>Mansfield (chap. 7)</td>
<td>Sprinz (chap. 8)</td>
<td>Huth and Allee (chap. 9)</td>
</tr>
</tbody>
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and explains both the advantages and limitations of these methods. Using central studies in the field, ranging from E. E. Schattschneider’s classic *Politics, Pressures, and the Tariff* (1935) to Richard Haass’s *Economic Sanctions and American Diplomacy* (1998), Odell shows how qualitative research has been instrumental in developing theories of international political economy. He argues that case studies may support a theoretical relationship but do not provide proof of causality. Therefore, he stresses the value of using statistical methods to complement empirical case studies.

In chapter 4, Ronald Mitchell and Thomas Bernauer examine the application of case study methods to the study of international environmental policy and outline procedures for designing and conducting qualitative case studies. They discuss the problems inherent in analyzing small samples. The chapter offers ways to increase validity and reliability in small- \( n \) studies by disaggregating cases into multiple events or observations. Mitchell and Bernauer suggest that in order to advance positivist case study research in international environmental policy and more broadly in international relations, scholars must aim to derive testable hypotheses with clearly identified variables and values.

The first part of the book concludes with Arie Kacowicz’s review of case study methods in international security studies (chap. 5). Kacowicz describes the contribution of empirical case study to ongoing debates in international relations, such as the democratic peace thesis. He identifies limitations of the method of difference and discusses recurring issues in the application of case studies such as selection bias and endogeneity problems. Kacowicz proposes several strategies for overcoming the methodological limitations of case studies and recommends using case studies to generate conditional theoretical statements. Finally, Kacowicz evaluates how case study analysis has advanced research on international security.

Part 2 of the book focuses on the use of quantitative methods in IR research. In their introductory chapter, Bear Braumoeller and Anne Sartori observe that quantitative methods allow researchers to draw inferences about the world by applying the laws of probability to the available data. While the statistical method facilitates summarizing relevant quantitative information in a compact way, it also requires careful evaluation of reliability and validity of measures and inferences. Most important, statistical methods render simultaneous testing of competing and complementary hypotheses in a precise way. Braumoeller and Sartori discuss two common shortcomings in
the application of statistical methods, namely, (1) weak theoretical foundations underlying model specifications and (2) errors in inference, especially confusion over the distinction between statistical and substantive significance. Nevertheless, Braumoeller and Sartori show that quantitative methods, when properly employed, can summarize a wealth of information in an accessible form and provide a rigorous means of testing theory.

In chapter 7, Edward Mansfield reviews how quantitative methods have been applied in the study of international political economy. He first highlights the important role of these methods and their growing use. About 45 percent of the articles published on international political economy in a sample of leading journals subscribe to quantitative methods—roughly the same proportion reported for international relations at large (fig. 1, this chap.). By focusing mainly on the literature on international trade, Mansfield shows how a progression of theoretical interests has shaped the explanation of a nation’s trade, including hegemonic stability theory, the effect of military alliances, and the interaction between military alliances and preferential trading arrangements. Mansfield recommends that more attention be given to the functional form of the relationship between variables and to developing reliable measures of key concepts of international political economy.

Detlef Sprinz reviews the quantitative research on international environmental policy in chapter 8. He covers studies of ecological modernization, the effects of international trade on the environment, environmental regulation, environmental security, and the effectiveness of international regimes. He summarizes common methodological problems in the field and provides examples of multimethod research on international environmental policy. Sprinz points to the absence of large databases that would facilitate cumulative research on basic questions in this realm, such as the effects of domestic regime type on democratic environmental performance.

Inspired by the reasoning of game theory, Huth and Allee develop a logical progression of stylized games to illustrate how quantitative research in international security studies could advance in the future (chap. 9). Their sequence includes a dispute initiation game, a challenge of the status quo game, and subsequently a negotiation or a military escalation game. Using this sequence of games, the authors highlight several methodological challenges in the study of international security and provide advice on ways to overcome selection effects and the lack of independence of observations.
both over time and cross-sectionally. Huth and Allee maintain that more attention should be placed on developing better measures of core concepts.

Part 3 of the book examines the application of formal methods to the study of international politics. In his introductory chapter, Duncan Snidal discusses the reasons for using models to study international relations (chap. 10). Snidal views formal modeling as complementary to other research methods. He emphasizes that successful modeling depends on the model being closely linked to important theoretical and substantive questions. While models always simplify reality, Snidal argues that models foster progress by allowing us to draw deductive inferences—thus leading to more precise theories. Snidal then illustrates the evolution of modeling in international relations by considering a developmental sequence of simple models starting with Richardson’s arms race model. He shows how the limitations of previous models inspired new directions and more effective modeling, especially game modeling, leading to a more precise analysis of competition and cooperation between states.

Following Snidal’s introductory chapter, Helen Milner provides an overview of formal methods approaches to the study of international political economy (chap. 11). Milner begins by defining the field of international political economy to include studies that address economic and political variables at the international level. Milner notes that rational choice methods have been an integral part of international political economy research, dating back to Hirschman’s (1945) *National Power and the Structure of Foreign Trade*. Milner reviews how rational choice theory has been applied in three major areas of international political economy: hegemonic stability theory; international trade and monetary policy-making; and international institutions and cooperation. Milner argues that the use of formal methods in these areas has been limited but fruitful, leading to progress in the development of IR theory. She also suggests that using formal methods to study international political economy can create a better discourse with international economics.

In chapter 12, John Conybeare explains the logic of the microeconomic approach to the study of international relations. Following a brief introduction to the principles of microeconomics, Conybeare shows how models of supply and demand can be applied to a variety of foreign policy issues such as war, peace, and trade liberalization. He argues that microeconomics can help organize information in ways that facilitate theory testing. The chapter also suggests that microeconomic models provide better explana-
tions of some phenomena than alternative IR theories such as the hege-
monic stability theory. Finally, Conybeare points to several additional
areas of IR in which the application of microeconomic approaches can
improve current research.

Marc Kilgour and Yael Wolinsky-Nahmias evaluate the potential con-
tribution of game-theoretic methods to the study of international environ-
mental policy (chap. 13). They argue that although the application of game
theory to international environmental politics is new, its focus on strategic
interactions lends it particularly well to central issues in global environ-
mental governance. Kilgour and Wolinsky-Nahmias discuss both coopera-
tive and noncooperative game theory and show how game models provide
insights into the likelihood, stability, and fairness of possible solutions to
environmental conflicts. A general deterrence model is used to illustrate
game modeling and is applied to water conflicts in the Middle East. The
article also discusses how two-level game models improve our understand-
ing of international environmental negotiations by addressing domestic
constraints. Finally, the authors evaluate the challenges and limitations of
employing game-theoretic methods in the study of international environ-
mental politics.

In chapter 14, Andrew Kydd argues that formal models are suited to
security studies because the field focuses on situations with a small number
of actors who have high stakes and long familiarity with the strategic prob-
lems they face. To illustrate, Kydd presents a simple bargaining model
based on the work of Fearon (1995) and Schultz (1999), and applies it to
the India-Pakistan dispute over Kashmir. By delineating rational responses
to uncertainty and to the role of signaling, Kydd shows how formal analy-
sis has greatly improved our understanding of the origins of war. Kydd also
discusses the contribution of game theory to other central debates in the
field, including the democratic peace, arms races, and alliances.

In the concluding chapter, the editors, Detlef Sprinz and Yael Wolin-
sky-Nahmias, reflect on how the three methods (empirical case studies, sta-
tistical analyses, and formal methods) have advanced our knowledge of cen-
tral issues in international relations. We discuss some of the
methodological challenges raised in the book and address the opportunities
and challenges of cross-methods analysis. We suggest a few thoughts about
new methodological developments and how they may affect future research
on international relations.

In summary, this book introduces the main methods of research in
international relations and addresses a broad range of questions, from how empirical case studies of international relations can be designed to overcome methodological challenges to how quantitative analysis can be integrated with formal methods to advance IR research. It discusses limitations and trade-offs in using case studies, statistical analysis, and formal methods in the study of international relations and evaluates applications of these methods in studies of international political economy, international environmental politics, and security studies. We hope that the book will generate a dialogue among scholars who specialize in different issue areas and will enhance the ability of researchers to conceptualize, theorize, and better understand trends and changes in international politics.

Notes

We would like to thank Roshen Hendrickson and So Young Kim for their research assistance.

1. We chose to focus on these three methods because these are the most common methods used in IR research.

2. Helen Milner (chap. 11) suggests that studies of international institutions and cooperation should be thought of as part of the field of international political economy if they involve the study of economic variables.

3. Books on methodology in the social sciences do not always distinguish between theory and methodology. For example, some consider “quantitative studies” and “formalized rational choice” either a “metatheoretical orientation” or “theoretical position” (Wæver 1998, 701–3). More generally, some social science methodology books, in particular in Europe, restrict themselves to a philosophy-of-science perspective—at the expense of more modern methodological considerations for social science research.

4. We also reviewed the statistical data excluding American Political Science Review (APSR) because the journal publishes political science research not limited to the study of international relations. We found that excluding APSR led to higher ratios of formal and statistical articles, but the reported trends remain the same.


6. The authors thank So Young Kim for her research assistance for this survey.

7. The classification is based on the following criteria: “Descriptive analysis” includes articles based on historical analysis that lack clearly detectable methodol-
ogy; “Case studies” include articles that use any of the research approaches discussed in chapter 2 and a justification for the case selection; “Quantitative analysis” ranges from simple correlation/covariance analysis and factor analysis to more sophisticated regression analysis; “Formal modeling” ranges from soft rational choice theory, simulation, and game-theoretic models to more sophisticated formal analysis that includes a mathematical proof; and “Cross-methods” analysis includes articles that combine at least two methodologies (mostly quantitative and formal analyses).

8. The book can also be read in conjunction with other books that have a different focus. One of the prominent books on methodological problems in the social sciences is Designing Social Inquiry by Gary King, Robert O. Keohane, and Sidney Verba (1994). It considers general methodological problems of social inquiry such as research design and causal inference (but it does not focus on issues that are of particular importance to the study of international relations). Another valuable book in the area of methodology, more specific to international relations, is Daniel Frei and Dieter Ruloff’s Handbook of Foreign Policy Analysis (1989), which covers mostly formal and statistical approaches to the study of foreign policy. Other books that discuss theories and methodologies of international politics include Patrick M. Morgan’s Theories and Approaches to International Politics (1987) and Michael Don Ward’s Theories, Models, and Simulations in International Relations (1985). These books, however, were published during the late 1980s or early 1990s. A more recent edited volume that offers a reflective evaluation of methodology in international studies is Frank P. Harvey and Michael Brecher’s Evaluating Methodology in International Studies (2002).

References


