

**PRINCIPLES OF FORECASTING:
A Handbook for Researchers and Practitioners**

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**PRINCIPLES OF FORECASTING:
A Handbook for Researchers and Practitioners**

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PREFACE

I have been working on forecasting issues for four decades. For many years, I had an ambition to write a book on principles summarizing knowledge in forecasting. Big ideas are nice, but how can they be made a reality? Fred Hillier, from Stanford University, was actually a step ahead of me. He suggested that I write a comprehensive book on forecasting as part of his "International Series in Operations Research and Management Science." Gary Folven, my editor at Kluwer was enthusiastic, so the Forecasting Principles Project was born in the middle of 1996.

In my previous book, *Long-Range Forecasting*, I summarized empirical research on forecasting but translated few of the findings into principles. As a result, an update of that book would not do. I needed a new approach. Because knowledge in forecasting has been growing rapidly, I also needed help. What an amazing amount of help I received.

First there are the 39 co-authors of this handbook. I chose them based on their prior research. They summarized principles from their areas of expertise.

To ensure that the principles are correct, I sought peer reviews for each paper. Most of the authors acted as reviewers and some of them such as Geoff Allen, Chris Chatfield, Fred Collopy, Robert Fildes, and Nigel Harvey reviewed many papers. I also received help from the 123 outside reviewers listed at the end of this book. They are excellent reviewers who told me or my co-authors when our thinking was muddled. Sometimes they reviewed the same paper more than once. Some of the reviewers, such as Steve DeLurgio and Tom Yokum, reviewed many papers.

Amy Myers prepared mailing lists, sent mailings, handled requests from authors, tracked down missing persons, and other things that would have been done much less effectively by me.

Can I thank the Internet? I marvel that edited books appeared before the Internet. It does not seem feasible to conduct such a joint undertaking without it. It allowed us to see each other's work and enabled me to send thousands of messages to contributors and reviewers. Many thousands. Try to do that without the Internet!

The staff at the Lippincott Library of the Wharton School was extremely helpful. Mike Halperin, head of the Lippincott Library, suggested resources that would be useful to practitioners and researchers, provided data and sources on various topics, and did citation studies. Jean Newland and Cynthia Kardon were able to track down data and papers from sketchy information. The Lippincott Library also has a service that enables easy searches; I click titles on my computer screen and the papers appear in my mailbox a few days later. Wonderful!

As part of my contract with Kluwer, I was able to hire Mary Haight, the editor for *Interfaces*. She was instrumental in ensuring that we communicated the principles effectively. No matter how hard we worked on the writing, Mary always found many ways to improve it. Seldom would there be a paragraph with no suggestions and I agreed with her changes 95% of the time. She edited the entire book. Raphael Austin then offered to read all of my papers. He did wonders on improving clarity.

John Carstens helped to design the layout for the chapters and solved word-processing problems. He also handled the revisions of my papers, making good use of his Ph.D. in English

by helping me to find better ways to express what I was trying to say and suggesting better ways to present charts and tables. Meredith Wickman provided excellent and cheerful assistance in word processing and rescued me in my struggles with Microsoft's *Word*. Patrice Smith did a wonderful job on proofreading.

The Forecasting Principles Website (<http://forecastingprinciples.com>) was originally established to allow for communication among the handbook's authors. John Carstens, our webmaster, designed such an effective site that it quickly became apparent that it would be of general interest. He translated my vague ideas into clearly designed web pages. He continues to update the site, averaging about two updates per week over the past three years. Able assistance has also been provided by our computer experts, Simon Doherty and Ron McNamara. The site serves as a companion to the handbook, containing supporting materials and allowing for updates and continuing peer review. It also provides decision aids to help in the implementation of forecasting principles.

J. Scott Armstrong
March, 2001

DEDICATION

I first met Julian Simon in 1981, although I had been aware of his research much earlier. At the time, I was being considered for a chaired-professor position in marketing at the University of Illinois. Julian, whom I regarded as one of the outstanding researchers in the field, was on that faculty but was not being offered a chair. It struck me as unfair. There was no doubt in my mind that Julian was more deserving of that chair than I was.

Julian and I kept in touch over the years. He would call to discuss new ideas or to suggest things we might work on. Usually, our ambitious plans remained on the to-do list. One of his ideas was for me to compare published economic forecasts by Milton Friedman with those by Paul Samuelson. Our hypothesis was that Friedman would prove more accurate because he followed theories, whereas Samuelson followed his instincts. (Friedman told me he would support the project, but I never did hear from Samuelson on this issue.) In any event, their forecasts turned out to be too vague to code. They also appeared to follow the adage, "Forecast a number or forecast a date, but never both."

Julian was a constant source of support for my work. It was with great sadness that I learned of his death in 1998. For me, he stands as the ideal professor. He knew how to find important problems, was tireless in his pursuit of answers, and had no ideological blinders. He asked how the data related to the hypotheses and did so in a simple, direct, and fearless fashion. His writing was clear and convincing. These traits were, of course, positively infuriating to many people. His forecasts also proved upsetting. Consider the following: "Conditions (for mankind) have been getting better. There is no convincing reason why these trends should not continue indefinitely."

Julian's broad-ranging work includes much that is relevant to forecasters. As was true for other areas in which he worked, his findings in forecasting have held up over time. They live on in this book.

I dedicate this book to the memory of Julian Simon.

J. Scott Armstrong
March, 2001

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