LONG-RANGE FORECASTING
From Crystal Ball to Computer
REFERENCES

With Ratings and Annotations
This section of the book contains the references from the first edition. To make room for the new material in the book, however, it was necessary to prune the old references. The problem appears to be the same as that facing the pharaoh in the following cartoon:

![Cartoon Image]

"I'm afraid I'll have to let some of you go. The people are complaining about excess prophets."


Of course, I did not trust to chance in pruning the list. Papers with empirical evidence relevant to the conclusions in *LRF* stayed. Descriptive materials were dropped if more recent descriptions did a better job. Some of the older materials were retained when they lent a historical perspective. In all, almost 700 references remain.

The items in the References are cross-indexed to the page in the text on which they are cited at the end of each entry. They are identified by *LRF XXX*, the *LRF* standing for *Long-Range Forecasting* and the Xs are the page numbers in the text. This is the same procedure as used in the UPDATED BIBLIOGRAPHY and Glossary.

In the few cases where unpublished sources are cited, instructions are provided on how to obtain a copy of the book or article. An attempt was also made to choose the most readable source when multiple sources were available. I have tried to indicate when books have been revised since the first edition.

The annotations tell something about the article beyond the description provided in the text of this book. They were updated in the revised edition.

The ratings are global judgments by me and are based on the following criteria:

1. Is the article relevant and important to the study of forecasting methods? This is the key factor. Some otherwise good articles are rated poorly with respect to this objective.
2. Does the article provide new and convincing information? I am biased toward papers that contain empirical results.
3. Is the article well written? I have preferences for simplicity and for full disclosure.
4. Does the article contain much information beyond the summary already provided in *LRF*?
These factors were used to develop a four-star system that may be interpreted as follows:

**** Outstanding! Scores well on all criteria above. This work should be of great interest to readers of LRF.
*** Very good. Is important in some respects.
** Good. Contains something of value. However, the readers of LRF would find this work of interest only in special cases.
* Marginal. Scores poorly on at least one of the four criteria or low on a number of criteria.
   - Is of no value with respect to forecasting methods and was referenced on a side issue.

In summary, the rating scheme provides information on the value of an item for further study of forecasting methods.

The right-hand column of each page contains coded information to help you locate studies. There are three categories:

M What forecasting method was used?
F What field was examined?
E Does the study contain empirical evidence?

The code for E is Y for “yes” or N for “no.” For papers designated as empirical, an “m” indicates that the study used the method of multiple hypotheses (i.e., Ym designates an empirical study that tested two or more reasonable hypotheses). NR means that coding is not relevant. The codes for M and F are as shown here:

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<tr>
<th>M (Method)</th>
<th>F (Field)</th>
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<tbody>
<tr>
<td>Bo = Bootstrapping</td>
<td>Agr = Agriculture</td>
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<td>Ec = Econometric</td>
<td>Dem = Demography</td>
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<td>Ex = Extrapolation</td>
<td>Eco = Economics</td>
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<td>I = Implementation</td>
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<td>Ju = Judgmental</td>
<td>Int = International business</td>
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<td>Sg = Segmentation</td>
<td>Fin = Finance</td>
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<td>T = Testing models</td>
<td>Med = Medicine</td>
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<td>NR = Not relevant</td>
<td>Mkt = Marketing</td>
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<tr>
<td>Per = Personnel</td>
<td>Pol = Politics</td>
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<tr>
<td>Pro = Production</td>
<td>Psy = Psychology or psychiatry</td>
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<tr>
<td>Sci = Scientific method</td>
<td>Soc = Sociology</td>
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<td>Tec = Technology</td>
<td>Trn = Transportation</td>
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<tr>
<td>Wea = Weather</td>
<td>NR = Not relevant</td>
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References

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<th>M</th>
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<tr>
<td>Simulation of the fluoridation controversy. A &quot;how-to-do-it&quot; article, that, unfortunately, uses only artificial data.</td>
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<td>Uses simulated data to compare seven types of extrapolation models. This study was replicated by McLEAVEY, LEE, and ADAM [1981]. Some corrections were made, but the basic conclusions held up.</td>
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<td>Ames, E., and Reiter, S., &quot;Distributions of Correlation Coefficients in Economic Time Series,&quot; Journal of the American Statistical Association, 56 (1961), 637–656. The authors found high correlations among randomly selected series from the Historical Statistics for the United States. For a randomly selected series of 25 years, it was usually possible to explain 50% of the variance by regressing the series against two to six other randomly selected time series.</td>
<td>Eco</td>
<td>Y</td>
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</table>

*M(Method), F(Field), E(Empirical)
†Remember, LRF (xxx) indicates the pages in LRF that discuss this item. In this case Abelson and Bernstein is discussed on page 250 and only that page.


* Armstrong, J. Scott, "Monetary Incentives in Mail Surveys," *Public Opinion Quarterly*, 39 (Spring 1975b), 111–116. Analyzes the literature on effects of monetary incentives, and predicts reduction of nonresponse in mail surveys as a function of monetary incentives. (LRF 114, 181, 495)


** Armstrong, J. Scott, and Andress, James G., "Exploratory Analysis"
References


Answer to postcard contest erroneously given in billions rather than in millions. (LRF 58, 181)


The authors' names were omitted. That was a serious mistake! (LRF 159)


Uses judgment and extrapolation to predict how nonrespondents would respond. (LRF 95, 114, 340)


Shows how "important factors" could be identified from random data if no attempt were made to assess reliability. Then surveys empirical papers on factor analysis and finds that about two-thirds made no attempt to assess the reliability of the factors. Tobias and Carlson (1969) provide a useful critique. (LRF 000)


This book examines short range forecasts by the National
Institute, London Business School, and other organizations. (LRF 161, 167, 409)

Well-written, short, and interesting. (LRF 166)


An interesting article on the value of tests of statistical significance. Moderately difficult reading, but worth the effort. Bakan's article was followed by R. LaForge, "Confidence Intervals or Tests of Significance in Scientific Research?" and D.B. Peizer, "A Note on Directional Interference." Both appeared in Psychological Bulletin, 68 (1967), 466–468. (LRF 356)

This was written shortly before the Edsel was introduced. The benefits of marketing research were praised, and a description was provided of the marketing research used in the decision to introduce the Edsel. (LRF 144)


Uses longitudinal data covering changes in auto sales by state in the United States. (LRF 209)

* Barber, Bernard, "Resistence by Scientists to Scientific Discovery," Science 134 (1961), 596–602. (LRF 433)

Describes a simple application of Markov chains. (LRF 160)

The labels in Table 1 conflict with the text. The error is in the text, I believe. (LRF 184, 520)

Reports on three laboratory experiments which showed a positive relationship between participation in planning, on the one hand, and morale and productivity, on the other. (LRF 36)


The authors compared and found small differences in accuracy among various extrapolation methods, but combinations were superior when based on methods that used different information. Extends work from Barnard (1963). (LRF 183, 186)


****** Bennett, Edith, "Discussion, Decision, Commitment, and Consensus in 'Group Decision,'" Human Relations, 8 (1955), 251–273.
The process of decision making and the degree of group consensus were more important than reaching a decision or public commitment. (LRF 35, 111)

A good explanation of the simultaneous equations approach. Shows why the best "historical fit" does not necessarily provide the best forecast. (LRF 129)


Prepresents descriptions of six previously published experiments (including Milgram's obedience study) to subjects and asks them to "imagine that you are that typical subject...answer these questions as if you had just participated in the experiments." Finds that people were less willing to participate in studies if there were no debriefing and if they might look bad in the experiment. (LRF 127)

** Best, Roger J., "An Experiment in Delphi Estimation in Marketing

### References

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**** Blalock, Hubert M., Jr., Causal Inferences in Nonexperimental Research. Chapel Hill: University of North Carolina Press, 1964. If you have struggled with the analysis of data, you will love this! Discusses how to use and interpret data. (LRF 75, 205)


** Bliemel, Friedhelm, W., "Theil’s Forecast Accuracy Coefficient: A Clarification," Journal of Marketing Research, 10 (1973), 444–446. (LRF 349)

*** Blumberg, Paul, Industrial Democracy: The Sociology of Participation, New York: Schocken Books, 1968 (Revised 1978). Dennis W. Organ reviewed this book in June 1974 (Business Horizons, p. 93–94), calling it the “best documented and most eloquent case on record for democratization of the economic enterprise.” It reviews the Hawthorne studies: There is no “Hawthorne effect.” The results are explained by the desire to participate in things affecting one’s life. (LRF 35)


** Borke, Helene, and Fiske, D.W., "Factors Influencing the Prediction of Behavior from a Diagnostic Interview," Journal of Consulting Psychology, 21 (1957), 78–80. Clinicians were able to make as accurate predictions about neurotic patients after reading a transcript of an interview as they could after a face-to-face interview. (LRF 100)

** Bowman, Edward H., "Consistency and Optimality in Managerial...
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References

This book is not my style. I would guess, however, that it is the most frequently cited book on forecasting. Its impact has been immense. Perhaps where there is smoke there is fire? (LRF 78, 174)
The discussion on methods of collecting data is especially strong. (LRF 113, 205)
* Bridgman, Percy W., The Logic of Modern Physics, New York: Macmillan, 1927. (LRF 65)
A fascinating book, but out of print. (LRF 94, 551)
Good description and reasonable argument, but no validation of the procedure. (LRF 144)
I thought this was a good description of exponential smoothing, but the reaction from many of my students was that the account is incomplete. (LRF 166, 170, 171).
Details on Brown’s earlier works. (LRF 180, 347, 450)
Once an uncertain situation has been perceived in a certain way, it is difficult to view it in any other way. (LRF 378)
Included only to give proper credit, this paper has a high fog index. (LRF 381)


Francis Galton studied the value of prayer. He found, for example, that kings and queens, who are the objects of their subjects’ prayers, die earlier than lawyers, gentry, and military officers; members of the clergy, presumably a prayerful class of men, live no longer than lawyers and physicians; the proportion of stillbirths suffered by praying and nonpraying parents appeared to be identical; and so on. People did not appreciate Galton’s work in this area, and it does not appear that the study has changed many attitudes since its completion in the 1870s. (LRF 264, 436)


Contains a brief description of J.R.M. Gordon’s work on bootstrapping on pp. 133–146. (LRF 280)


Compares a simple exponential smoothing model to an exponential smoothing model with trend, seasonality, and an adaptive rule for alpha. The latter model provided better one-month-ahead ex ante forecasts, but the three changes were confounded. (LRF 388)


A novel. (LRF 76, 250)

* Burgess, Ernest W., Predicting Success or Failure in Marriage. New York: Prentice-Hall, 1939. (LRF 218)


Econometric studies of food consumption. You might say it offers a lot of thought for food. (LRF 202)


The popularity of their approach has lasted over the years.


This article is widely cited and has led to much follow-up research. (LRF 65)


Self-report was better for items where it was helpful for respondent to consult records in this survey on hospitalization. (LRF 116)


People make greater use of base rate information when there are small samples, exhaustive sampling of the population, and a population percentage that corresponds to a whole number in the sample. (LRF 98)

* Carter, Phillip L., and Hamner, W.C., "Consistency and Bias in Organizational Decision Making." Working paper obtained from Carter at the Graduate School of Business Administration, Michigan State University, East Lansing Mich. 48823, approximately 1972.

Uses same experiment as Moskowitz and Miller (1972). (LRF 282)


Contains a good suggestion on fees for consultants who want to bring about change: the larger the number and the greater the importance of the recommendations implemented by the organization, the lower the consulting fee. (LRF 35)


Predicted enrollment and hiring levels for 15 years. The early 1980s were expected to be a bad time for Ph.D.s—big supply and small demand. (LRF 202)


Carver’s paper is concerned about fallacious methods in the assessment of speed reading. In particular, the assessment of
comprehension does not distinguish between what the person knew about the subject before reading and what the person knew after reading. Carver's article made some people mad. Richard G. Graf did a follow-up: "Speed Reading: Remember the Tortoise," *Psychology Today*, 7 (December 1973), 112-113. His results supported Carver's. In Graf, the original speed of the speed reader trainees was much lower than that of the control group. (LRF 396)


Good quotations. Describes some of the "go words" used by technological forecasters. Disappointing collection of papers; a review by Tony Flowerdew in the *Operational Research Quarterly*, 24 (1973), 331, said that most of this book comes under the heading "Technological Research Allocation System Hassle," or its acronym. (LRF 322, 366)


This article was first published in *Science* in 1890, was reprinted in 1897, 1931, 1944, and 1965, and is still relevant in 1978. See also Platt (1964). (LRF 437)


This book is based on a highly cited *Harvard Business Review* article. The conclusions were not based on empirical findings. I think that some of the conclusions are wrong. (LRF 72)


Uses the "draw-a-person" test. (LRF 372, 378, 380)


People see what they expect to see, and this interferes with perceiving real relationships. Makes one question the value of experience. (LRF 52, 378)


The 55 pages include discussions by other people at a conference, as well as a reply by Box and Jenkins and then a reply to the Box-Jenkins' reply. The paper does not examine alternative methods, but looks only at Box-Jenkins. The papers demonstrate so much confusion that it makes one thing per-
effectly clear: Box-Jenkins is not easy even for experts in Box-
Jenkins methodology. (LRF 174, 175, 176, 494)

* Chein, Isidor, "The Logic of Prediction: Some Observations on Dr.
An emotional outburst against the use of objective methods.
(LRF 434)

** Chisholm, Roger K., and Whitaker, Gilbert R., Jr., Forecasting
Methods, Homewood, Ill.: Irwin, 1971.
More concerned with measurement than with forecasting. (LRF 72)

** Chow, Wen M., "Adaptive Control of the Exponential Smoothing
See GARDNER [1983b] for an unsuccessful attempt to rep-
licate these results. (LRF 171, 494, 609)

** Christ, Carl F., "A Test of an Econometric Model for the United
States, 1921–1947," in National Bureau for Economic Research,
Conference on Business Cycles, New York, 1951, pp. 35–107 with
discussion on pp. 107–129. See also Christ (1956). (LRF 388, 407,
433)

** Christ, Carl F., "Aggregate Econometric Models," American Eco-
nomics Review, 46 (1956), 385–408.
An extension of Christ (1951). (LRF 526)

** Christ, Carl F., "Simultaneous Equation Estimation: Any Verdict
Yet?" Econometrica, 28 (1960), 835–845. (LRF 200)

** Christ, Carl F., "Judging the Performance of Econometric Models
54–74.
developed with 1953–1970 data. Examines both ex ante and
ex post forecasts. Subjectively adjusted forecasts improved ac-
curacy for ex ante forecasts but made things worse for ex post
forecasts. (LRF 397, 409)

*** Christal, R.E., "Selecting a Harem—and Other Applications of the
(Summer 1968), 35–41.
Claims that this approach has been used successfully in rep-
resenting a number of different types of personnel decisions
(promotions, job ratings, and grading of jobs). (LRF 284)

** Clarkson, Geoffrey, P.E., Portfolio Selection. Englewood Cliffs, N.J.:
Prentice-Hall, 1962 (LRF 277)

**** Claudy, John G., "A Comparison of Five Variable Weighting Pro-
dedures," Educational and Psychological Measurement, 32 (1972),
311–322.
Claudy did studies on simulated data with sample sizes of 20,
40, 80, and 160. He used unit weights, regression coefficients,
and three other weighting schemes. (LRF 230)
References

** Clawson, J.S., "How Useful Are 90-Day Purchase Probabilities?," Journal of Marketing, 35 (October 1971), 43-47. (LRF 82)

No alternative model for comparison, and thus no demonstration that the authors' model led to better forecasts. (LRF 154)

One of the earliest and best known of the participation studies. (LRF 35)

The authors discuss many practical issues (e.g., what to do about missing data). (LRF 220)


** Colombotos, John, "Personal vs. Telephone Interviews: Effect on Responses," Public Health Reports, 84 (September 1969), 773-782.
The author found no differences between personal and telephone interviews on physicians' responses to political, professional, and personal items. (LRF 115)


Discussion is so brief that it is hard to understand. In any event, she concluded that a combined forecast for distinguishing between psychiatric and nonpsychiatric people was consistently superior to any single judge. (LRF 137)

I used the description of this study in Raiffa (1969). (LRF 141)

*** Cooper, J. Phillip, and Nelson, Charles R., "The ex ante Prediction Performance of the St. Louis and FRB-MIT-PENN Econometric Models
and Some Results on Composite Predictors,” Journal of Money, Credit, and Banking, 7 (1975), 1-32.

The authors used Box-Jenkins as a benchmark for accuracy in this study of one-quarter-ahead forecasts of macroeconomic variables. (LRF 408)


Long and detailed. Much work went into this study that compared an extrapolation model with seven different quarterly econometric models. The extrapolation was based on a regression against the dependent variable for up to eight preceding quarters. Data from 1949 through 1960 were used for model development, and forecasts were made for quarters from 1961 through 1965. Of the eight forecasting models, the extrapolation model was most accurate for 18 of the 33 variables being forecast. The discussants criticized this study, but clearly the econometric models were not superior here. (LRF 408, 433, 435)

** Copeland, Ronald M., and Marioni, R.J., “Executives’ Forecasts of Earnings per Share versus Forecasts of Naive Models,” Journal of Business, 45 (1972), 497-512. (LRF 87, 396)


Discussion on the smoking-cancer controversy. Good reading for those who feel that “proof” of causation always depends on direct experimentation (also good reading for those who think that the smoking-cancer issue is still undecided). It was decided long ago. (LRF 210)


Theoretical argument showing how the expected error increases with increased complexity in the model, with small samples, and with longer forecast horizons. (LRF 180)


The answer was “no,” and this answer has been reinforced in numerous studies since 1933 such as Jensen (1968). (LRF 94)


Follow-up to Cowles (1933). (LRF 94)
Examines the ability of 11 different services in forecasting national business conditions. (LRF 94)


Unsuccessful attempt to replicate Whitbeck and Kisor (1963). (LRF 167, 573)

This article is widely cited. (LRF 65)

A training program increased the confidence and reduced the accuracy of judges. (LRF 383)


Good illustration but no evidence. (LRF 158, 275)


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<tr>
<td>* Daly, Rex F., “Long-Run Economic Projections: A Review and Appraisal,” Agricultural Economics Research, 15 (October 1963), 113–121. (LRF 183)</td>
<td>Ex</td>
<td>Eco</td>
<td>N</td>
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<tr>
<td>**** Dawes, Robyn M., “A Case Study of Graduate Admissions: Application of Three Principles of Human Decision Making,” American Psychologist, 26 (1971), 180–188. Good description of bootstrapping and a useful application that should be adopted by universities. I originally predicted that adoption would be slow. It has been. See DAWES [1979]. (LRF 281, 283, 638)</td>
<td>Bo</td>
<td>Edu</td>
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<tr>
<td>**** Dawes, Robyn M., and Corrigan, Bernard, “Linear Models in Decision Making,” Psychological Bulletin, 81 (1974), 95–106. Interesting tidbit is the description of Ben Franklin’s “moral or prudential algebra”: List pros and cons in separate columns, apply weights subjectively, then sum the columns. Ben’s method is still a good one. (LRF 217, 230, 283)</td>
<td>Bo</td>
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References

  Fascinating description of the reactions to Immanuel Velikovsky. See especially the paper by Ralph J. Juergens. (LRF 67, 433)
  A good discussion of the practical problems one encounters when analyzing data, although the latest edition seems to be caught up in statistical sophistication. (LRF 220)
* Duncan, Otis Dudley, "Social Forecasting—the State of the Art," Public Interest, 17 (Fall 1969), 88–118. (LRF 322)
** Dunnett, Charles W., "A Multiple Comparison Procedure for Com-


** Durbin, J., "A Note on Regression When There is Extraneous Information about One of the Coefficients," Journal of the American Statistical Association, 48 (1953), 799–808. (LRF 232)


** Einhorn, Hillel J., "Expert Measurement and Mechanical Combination," Organizational Behavior and Human Performance, 7 (1972a), 86–106. Suggests a combination of judgement and objective methods with the judge gathering the data and the statistician processing it. Examines decomposed vs. global judgments for three judges predicting the life span of 193 people with Hodgkin's disease. (LRF 276)


Planning is the major concern here, rather than forecasting. The discussion of cost-benefit analysis is interesting. (LRF 19, 39)


A controversial article in marketing research. At least six journal articles analyzed this paper. This case provides an interesting history of the evaluation of a research paper.

1. Steiner, Gary, “Notes on Franklin B. Evans’ 'Psychological and Objective Factors in the Prediction of Brand Choice,'” Journal of Business, 34 (1961), 57–60. Suggests that other explanations should have been considered; for example, the criterion variable was not reliable, and the psychological measure was not valid.

2. Winick, Charles, “The Relationship among Personality Needs, Objective Factors, and Brand Choice: A Re-Examination,” Journal of Business, 34 (1961), 61–66. Points out data showing large year-to-year changes in perceptions of Ford and Chevrolet. Also states that the psychological test is not highly reliable, nor is variation expected to be large.

3. Evans, Franklin B., “Reply: You Still Can't Tell A Ford Owner from a Chevrolet Owner,” Journal of Business, 34 (1961), 67–73. Steiner misinterpreted Table 19, Evans says; its rank order data and differences were, in fact, small. Evans tried Winick’s idea of using homogeneous model years and found no differences in results. Winick’s critique of the reliability of the Edwards test was wrong.


7. There were also attacks on Evans’ work in the popular press. For example, see Pierre Martineau, “Letter to the Editor,” *Advertising Age*, Dec. 21, 1959, p. 76. (LRF 302)


This paper is based on an excellent idea; it has good raw data; the study design is fair; the interpretation of the results is impressionistic, with hypotheses obtained after the data were examined; and the writing is difficult to follow. (LRF 237, 241)


Forecasts the demand for oil burners, gas burners, and electric heaters for 1973–1984. No validation. (LRF 158)


For surveys of the general population, response rates are higher if you call during the week (Monday through Thursday). Also, it is better to call in the morning, next best is the afternoon, and nights are worst. (Of course, it is cheaper to call at night.) (LRF 115)

** Fegley, Kenneth A., Armstrong, J. Scott, and Salisbury, James B., "Analysis of Medical Forecasting Techniques," Mimeo: University City Science Center, October 1971. Compares simple vs. complex functional forms; also compares segmentation and econometric methods. (Copies can be obtained from J. Scott Armstrong). (LRF 413, 415)

** Fels, Rendigs, and Hinshaw, C. Elton, "An Analysis of Turning Point Forecasts: A Fairly Polite Comment," American Economic Review, 64 (1974), 724–727. Although it really was not polite, it did summarize work done on turning points while the authors criticized a paper by Stekler. Stekler replied politely on pp. 728–729 of this same issue. (LRF 355)


* Fischhoff, Baruch, "Hindsight ≠ Foresight: The Effect of Outcome Knowledge on Judgment under Certainty," Journal of Experimental Psychology: Human Perception and Performance, 1 (1975), 288–297. Finding out that an outcome had occurred increased its perceived likelihood as remembered by the judge. (LRF 39, 384)


* Flesch, Rudolph, "Preparation of Effective Reports," in H.B. May-
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<td>* Forrester, Jay W., &quot;Industrial Dynamics—after the First Decade,&quot; Management Science (Theory), 14 (1968a), 398–415. (LRF 263)</td>
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<td>* Forrester, Jay W., &quot;Industrial Dynamics: A Response to Ansoff and Slevin,&quot; Management Science (Theory), 14 (1968b), 601–618. (LRF 517)</td>
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<td>** Francis, R.G., &quot;The Relation of Data to Theory,&quot; Rural Sociology, 22 (1957), 258–266. (LRF 55)</td>
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<td>** Frankel, Lester R., &quot;Are Survey Data Being Over-adjusted?&quot; in Leo Bogart (Ed.), Current Controversies in Marketing Research. Chicago: Markham, 1969. (LRF 478)</td>
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Not much difference was found among models in their ability to provide quarterly forecasts. (LRF 228)


Although disconfirming evidence did not lead to a reduction in confidence in the old belief, it did decrease the speed with which decisions were made. This study was done with red and white poker chips. (LRF 52, 383, 437)


The author, the founder of Gerstenfeld’s law of trying, made a survey of 425 firms in Fortune’s 500 (and got 162 returns) about long-range planning methods. (LRF 117)


Purely descriptive with a preference for statistical formulae. Draws generalizations but does not present evidence to support them. Chapter 9 (pp. 150–161) provides a decent treatment of growth curves. (LRF 181, 609)


This paper, which examines about 30 years of research effort in forecasting success on parole, suggests that theory should precede the development of a predictive model. (LRF 198)


Shows how to reach unlisted telephone numbers. Useful article, but a nasty business. (LRF 114)


*  Ec  Eco  Ym

**  Ju  Pol  N

**  Ju  NR  Ym

***  Ex  Trn  Ym

**  NR  NR  N

***  Ex  Soc  Y

***  Ec  Wea  N

**  Ju  NR  Y

**  Ju  NR  Y
This paper describes the characteristics of people with unlisted numbers. (LRF 114)


See also the comments by Edwin Berdy and by Victor Cole, which appear with a reply by Gold in Journal of Marketing, 2 (1965), 196-200. (LRF 157)

Experts were no better than novices on diagnosis. There was no relationship between an individual's accuracy and his confidence. A suggestive finding was that expertise derived from empirical studies did lead to greater accuracy; unfortunately, there was only one expert who had achieved his expertise via empirical studies. (LRF 382)


A critique of Lindzey (1965). (LRF 393, 550)


Critique of Einhorn (1970). The linear model proved better than the conjunctive and disjunctive models in representing predictions by 29 clinicians as to psychotic vs. neurotic patients. (LRF 278, 532)

A reanalysis of Libby (1976a) revealed that his study was a positive finding for bootstrapping. See Libby's (1976b) reply to Goldberg. (LRF 283, 550)


Gordon, Kate, "Group Judgments in the Field of Lifted Weights," *Journal of Experimental Psychology*, 7 (1924), 398–400. (LRF 135, 589)


The authors examined 50 monthly macroeconomic time series and made forecasts for one to eight months in the future. The Box-Jenkins model performed well. (LRF 175, 290, 408, 557)


Regression weights slightly better than unit weights on cross validation; the original sample size was 430. (LRF 229, 230)


Professional experience was not related to accuracy in prediction. (LRF 93)


Interestingly enough, this is a follow-up of the authors’ 1967 paper. (LRF 397, 398)


Chapter on scaling is good. (LRF 106, 220)

References

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* Hacke, James E., Jr., The Feasibility of Anticipating Economic and Social Consequences of a Major Technological Innovation, Stanford Research Institute, Menlo Park, Calif., October 1967. (LRF 19)


** Haitovsky, Yoel, "A Note on the Maximization of R²," American Statistician, 23 (February 1969), 20–21. (LRF 487)


Examed the value of group background (established vs. ad hoc groups) and group process (trained vs. untrained). The results are only partially presented. (LRF 122, 482, 501)

Contains a better description of the work referred to in Hall (1971). (LRF 122, 372, 605)


Slight tendency was found for movement toward accuracy in subsequent rounds of Delphi. This increased accuracy occurred when the shift was toward the skewed end of the distribution. (LRF 118, 119)

A collection of empirical studies based primarily on econometric analysis using time series. The stress is on measurement, and little consideration was given to forecasting. (LRF 202)

Harris asked people to act as potential consumers in rating china and other dinnerware. This study tested concurrent validity. (LRF 155)

Criticizes Holt (1958) as a study of data fitting rather than of prediction. Harris also presents his study of forecasting football scores, which compares extrapolation and judgement methods. (LRF 55, 273)

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<td>Compares extrapolation methods with intuitive forecasts. ( LRF ) 171, 397, 400</td>
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<td>Good idea, but nearly incomprehensible. I think that information must have been left out of the explanation. ( LRF ) 171</td>
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<td>Hauck, Mathew, and Cox, Michael, &quot;Locating a Sample by Random Digit Dialing,&quot; <em>Public Opinion Quarterly</em>, 38 (1974), 253–260. The authors found it difficult to obtain household demographic information with random digit dialing (35% refusals). ( LRF ) 115</td>
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<td>Heilbroner, Robert L., <em>In the Name of Profit</em>. Garden City, N.Y.: Doubleday, 1972. ( LRF ) 289</td>
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<td>Higgins, J.V., Reed, E.W., and Reed, S.C., &quot;Intelligence and Family Size: A Paradox Resolved,&quot; <em>Eugenics Quarterly</em>, 9 (1962), 84–90. ( LRF ) 322</td>
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<td>Hiler, E. Wesley, and Nesvig, David, &quot;An Evaluation of Criteria Used by Clinicians to Infer Pathology from Figure Drawings,&quot; <em>Journal of Consulting Psychology</em>, 29 (1965), 520–529. ( LRF ) 93, 379</td>
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Assumes too much on the part of the reader. Makes strange comparisons (e.g., the accuracy of three-month sales forecasts for firms was judged in comparison with the accuracy of 12-month forecasts of the national economy.) *(LRF 396)*


Excellent study but the authors infer too much from their data. This study was replicated by Steven G. Rank and Cardell K. Jacobson, "Hospital Nurses Compliance with Medication Overdose Orders: A Failure to Replicate," *Journal of Health and Social Behavior*, 18 (1977), 188–193. Two important changes were made in the replication: the nurses were familiar with the drug, and they were able to obtain peer group support for their refusal to obey. Still, half of the nurses were prepared to follow orders if the doctor insisted. *(LRF 112, 155)*


Compares six ways to have a group make predictions of the behavior of the jurors in the movie *Twelve Angry Men*. A consensus after a majority vote was most accurate, consensus alone was second best, and majority vote third; averaged prediction, leader prediction, and committee prediction all did poorer. *(LRF 123)*


Subjects were told they would be given a painful electric shock. Other subjects were asked to role-play that they would receive the shock. Both groups of subjects gave similar responses about how they felt (e.g., calm, tense), but the role-play subjects did not show the same physiological changes. *(LRF 127)*


Reproduces Asch’s (1965) study of conformity with role playing. (LRF 127)

Incidentally, Hotelling’s comments about the problems with teaching are the same ones we hear today. (LRF 323)


Interesting conclusions, but it was not clear to me how these conclusions were reached. (LRF 96, 105, 589)


Read the Rayco case as a "how not to do it" and forget the rest of the book. (LRF 53)
References


Contains a list of 17 data archives. (LRF 259, 469)


Box-Jenkins proved more accurate than Wharton and OBE econometric models for one-period-ahead forecasts. No test of statistical significance was done. (LRF 408)


The authors concluded that "various naive models can do as well or better than the [regression] equations analyzed in this paper." (LRF 408)


If you would like to stop smoking, this approach might help. (LRF 125)


An annotated bibliography of 413 items is presented and the coverage goes beyond technological forecasting. (LRF 7)


The first of these articles provides a review of the literature, and the second reports on a "how-many-beans-in-a-jar" study of judgment. (LRF 120)


The 115 mutual funds in this study were unable to predict better than a "buy-the-market-and-hold" strategy. (LRF 528)

Describes the operational details of a Delphi study at Corning Glass Works. Provides data on speed of response, response rates, dropout rates, calendar time, and time use per panel member. (LRF 117)


* Johnston, Roy, and McNeal, B.F., “Combined MMPI and Demographic Data in Predicting Length of Neuropsychiatric Hospital Stay,” Journal of Consulting Psychology, 28 (1964), 64–70. (LRF 229, 230)


** Jorgenson, Dale W., Hunter, Jerald, and Nadiiri, M.I., “The Predictive Performance of Econometric Models of Quarterly Investment Behavior,” Econometrics, 38 (1970), 213–224. I reexamined their data to test the hypothesis that simple models are more stable than complex ones. The simplicity of the four models, ranked by the number of variables (five, six, seven, and nine), agreed perfectly with the ranking of stability (p < .05). In other words, complexity reduced stability. (LRF 228)


Kegeles, S.S., Fink, C.F., and Kirscht, J.P., "Interviewing a National Sample by Long-Distance Telephone," Public Opinion Quarterly, 33 (1969), 412–419. Respondents to a previous personal interview on the subject were likely to respond also to a follow-up telephone survey. (LRF 114)


Kirby, Robert M., "A Comparison of Short and Medium Range Statistical Forecasting Methods," Management Science, 13 (1966), B202–B210. Exponential smoothing, moving average, and regression-against-time models were compared for short- and intermediate-range forecast accuracy. Kirby used actual data on sewing machine sales in five countries, as well as simulated data. Good study, but some important details seem to be missing. (LRF 173, 177, 494)


A review of Burns and Mitchell (1946). (LRF 53)


Of major interest is the comparison of subjective and objective methods. The major problem with the analysis is that the criterion (managerial success) is similar to the subjective predictor (ratings of potential success by managers). (LRF 395, 396, 399)


Franklin Fisher, American Political Science Review, 52 (1958), 321–338, criticized Kort’s study; actually, it beat the hell out of the details. Kort replied in the same issue. (LRF 276)


The criterion ($R^2$) and the extrapolation model were not ideal for such a comparison. The write-up seems to omit some relevant material. (LRF 396, 403, 406, 409)


Discusses differences between cross-section and time series data. Suggests that estimates from the two types of data be averaged. (LRF 212)


Competition, choice, familiarity, and involvement tend to give people a feeling of control, even in situations involving chance. Describes six studies. *(LRF 376, 378)*  


** LaPiere, R.T., "Attitudes vs. Actions," *Social Forces*, 13 (1934), 230–237. *(LRF 84)*  

* Larsen, Knud S., Coleman, D., Forbes, J., and Johnson, R., "Is the Subject's Personality or the Experimental Situation a Better Predictor of a Subject's Willingness to Administer Shocks to a Victim?" *Journal of Personality and Social Psychology*, 22 (1972), 287–295. *(LRF 127)*  


Lewis, Sinclair, *Arrowsmith*. New York: Harcourt, Brace, 1924. Novel about the dilemma faced by an experimenter; to learn, you must do something wrong. (For trivia fans, Lewis refused a Pulitzer Prize for this novel in 1925.) (LRF 435)


A collection of papers on various aspects of Delphi. Unfortunately, the art is not in good shape. Contains an extensive bibliography. Reviewed by Harold Sackman in Futures, 8 (1976), 444–446. (LRF 117)


Inside information can lead to a better prediction of stock prices. This point has been made elsewhere. For example, read the account of the Texas Gulf Sulphur case in Brooks (1969). (LRF 94)


My interpretation of this study was supplemented with information from the author by personal communication. (LRF 213)

[Note: See Mc after Mb.]


How high is the sun? The author says that a good rule of thumb to estimate measurement error is to obtain the best estimate you can by using independent sources, and then multiply by 3. (LRF 65)


Argues that unconditional predictions are useless. (LRF 306)


A useful guide on how to run group meetings. Unfortunately, this excellent book is now out of print. (LRF 32)

** Maier, Norman R.F., "Prior Commitment as a Deterrent to Group Problem Solving," Personnel Psychology, 26 (1973), 117–126. (LRF 124)

*** Maier, Norman R.F., and Maier, Richard A., "An Experimental Test of the Effects of 'Developmental' vs. 'Free' Discussions on the Qual-
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Small sample, but subjects who kept track of their smoking increased it by 87%. When they kept count of the number of times they felt like smoking but did not, the smoking rate went down by 31%. Conclusion: measure the behavior that you want to achieve. (LRF 37)


*** Meehl, Paul E., "Seer Over Sign: The First Good Example," Journal of Experimental Research in Personality, 1 (1965), 27–32. Meehl used this opportunity to update his box score of studies from 18 in his 1954 book to about 70 as of 1965. (LRF 393)


* Milkovich, George T., Annoni, A.J., and Mahoney, T.A., "The Use of Delphi Procedures in Manpower Forecasting," Management Science, 19 (1972), 381–388. This would have been a good study if the authors had used more than one observation. (LRF 396, 399)

* Miller, Arthur G., "Role Playing: An Alternative to Deception? A Review of the Evidence," American Psychologist, 27 (1972), 623–636. A review article based on four empirical studies. A negative view of role playing, based on what I thought to be strange arguments. This reference is provided to give you an alternative to the viewpoint in LRF. (LRF 128)

* Miller, George A., "The Magical Number Seven, Plus or Minus Two," Psychological Review, 63 (1956a), 81–97. (LRF 102)

* Miller, George A., "Information and Memory," Scientific American, 195 (August 1956b), 42–46. (LRF 102)


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<td>Moore, Henry T., &quot;The Comparative Influence of Majority and Expert Opinion,&quot; American Journal of Psychology, 32 (1921), 16–20. The impacts of &quot;majority&quot; and &quot;expert&quot; opinion are of roughly comparable magnitude when it comes to influencing group opinion. This study covered speech, morals, and music. (LRF 110)</td>
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References


No tests of statistical significance. *(LRF 408)*


Box-Jenkins was more accurate than an econometric model for one-quarter ahead *ex post* forecast accuracy. Box-Jenkins was more accurate for the 2-year validation period. *(LRF 164, 408)*


Uses 80 monthly economic time series. Overlaps Granger and Newbold, 1974. *(LRF 176, 187, 494)*


"Subjects’ unwillingness to deduce the particular from the general was matched only by their willingness to infer the general from the particular." See also BORGIDA [1978]. *(LRF 85, 589)*


Discusses problems with wording, such as monotony, follow-up questions, position of the question, how to define the object of the study, and how to express alternatives. Presents examples and suggests solutions. *(LRF 99)*


* Oskamp, Stuart, “Clinical Judgment from MMPI: Simple or Complex?” Journal of Clinical Psychology, 23 (1967), 411–415. Clinical psychologists used MMPI plus education and age variables to predict which patients had mental problems. (LRF 93, 142)


** Patterson, C.H., “Diagnostic Accuracy or Diagnostic Stereotypy,” Journal of Consulting Psychology, 19 (1955), 483–485. This provides a history on the problem of multiple comparisons. (LRF 357)


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cence, 14 (1969), 364–370. (LRF 262)

Pressley, Milton M., Mail Survey Response: A Critically Annotated
Contains 110 entries. (LRF 114)

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559–563. (LRF 413, 415)


* Quinn, Robert P., and Mangione, Thomas W., "Evaluating
Weighted Models of Measuring Job Satisfaction: A Cinderella Story," Organizational Behavior and Human Performance, 10 (1973),
1–23. (LRF 218)

Rabinowitz, W., and Rosenbaum, J., "A Failure in the Prediction
of Pupil-Teacher Rapport," Journal of Educational Psychology, 49
(1958), 93–98. (LRF 328)

* Rabitsch, Elisabeth, "Input-Output Analysis and Business Forecasting," Technological Forecasting and Social Change, 3 (1972),
453–464. (LRF 265)

* Raiffa, Howard, Decision Analysis. Reading, Mass.: Addison-Wes-
ley, 1968. (LRF 57)

* Raiffa, Howard, "Assessments of Probabilities." Unpublished pa-
per, January 1969. (Copies may be obtained from John Fitzgerald
Kennedy School of Government, Littauer Center, Harvard Univer-
sity, Cambridge, Mass. 02138). (LRF 573)


A "how-to-do-it" article. (LRF 265)

229–233. (LRF 286)

* Reichard, Robert S., Practical Techniques of Sales Forecasting. New

* Reinmuth, James E., and Geurts, M.D., "A Bayesian Approach to Forecasting the Effects of Atypical Situations," Journal of Market-
ing Research, 9 (1972), 292–297.
Good idea, but only one data point! (LRF 273)

552–561. (LRF 55, 230)


Compares five different models, using extrapolation and econometric methods; also uses five different criteria. Concludes that naive methods are as good as econometric methods for annual ex ante forecasts over the 12-year test period. However, the effects of the various methods were confounded. (LRF 408)


Replicates Milgram (1974), using sound instead of electric shocks, and also having the experimenter act surprised at the victim's pain. Results were similar to Milgram's. (LRF 127)


Intentions were more accurate than extrapolation and econometric methods for ex post forecasts over a four-year forecast horizon. (LRF 396, 397, 401)


The authors used an input-output model that incorporated anticipations data to make one-year forecasts in the steel industry. The model did better than two simple naive models, but the sample sizes were small, the effects of the various methods were confounded, and the writing is poor. Otherwise, the article is O.K. (LRF 265, 409)


Two indirect methods of segmentation were compared with two direct methods. A comparison was made between direct segmentation and forward and backward stepwise regressions. The regressions, especially the step-up version, provided better forecasts. (LRF 223, 262)


Telephones can be used for long interviews (about 50 minutes). (LRF 115)


The suicide rate is only about 1 in 10,000 people per year. This creates problems for prediction. (LRF 354)


The first 60 pages provide a good review of the "self-fulfilling" prophecy. (LRF 109, 110)


Suggests that cheating and cutting corners are the rule rather than the exception among hired research workers. The solution? Roth says that the workers should participate in decision-making on the project. There is also a need to audit results. (LRF 116)


Compares four scales to assess coupon redemption for two brands of soap and two brands of cereal. (LRF 106)


*** Sackman, Harold, Delphi Critique: Expert Opinion, Forecasting, and Group Process. Lexington, Mass.: D. C. Heath, 1975. Although this book is short (76 pages followed by about 150 annotated references), it provided a thorough review and evaluation of Delphi. Brian Twiss, in a review in Futures, 8 (1976, 357–358, says that the book has been highly controversial. Furthermore, he implies that Sackman's book will not convince advocates of Delphi to discard it. For critiques on Sackman see the special issue on Delphi in Technological Forecasting and Social Change, 7, No. 2, 1975. (LRF 117, 118, 119, 433)


** Sanders, Frederick, "On Subjective Probability Forecasting," Journal of Applied Meteorology, 2 (1963), 191–201. Weather forecasters became overconfident when no objective record was kept of forecast accuracy. This did not occur when they kept records. (LRF 137)

*** Sarbin, Theodore R., "A Contribution to the Study of Actuarial and Individual Methods of Prediction," American Journal of Sociology, 48 (1943), 593–602. First of the "clinical vs. statistical" studies in psychology. A good study that has held up well over the years. (LRF 393)


** Schefflen, Kenneth C., Lawler, E.E., and Hackman, J.R., "Long-Term Impact of Employee Participation in the Development of Pay Incentive Plans," *Journal of Applied Psychology*, 55 (1971), 182–186. Management departed from participative management in two of the three participative groups, surprising both the workers and the researchers. Performance then dropped in these groups. *(LRF 36)*


** Schneidman, Edwin S., "Perturbation and Lethality as Precursors of Suicide in a Gifted Group," *Life-Threatening Behavior*, 1 (Spring 1971), 23–45. *(LRF 372)*


** Shelton, John P., "The Value Line Contest: A Test of Predictability
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** Sheppard, R.N., "On Subjectively Optimum Selections among Multi-

Good survey of the early work in judgmental forecasts. (LRF 279, 569)


According to *Current Contents*, this was the second most frequently cited work in mathematical and statistical journals over the 1961–1972 period. (LRF 224, 352, 356, 405, 505, 506, 510, 512)


Results from experiment and role play differed substantially in this study. (LRF 128)


Econometric models provided better forecasts than did naive models for 1953–1963. The econometric models were relatively less accurate, however, in the more recent years. (LRF 408, 409)

**Slovic, Paul, Fleissner, D., and Bauman, W.S., "Analyzing the Use of Information in Investment Decision Making: A Methodological Proposal," Journal of Business, 45 (1972), 283–301. The longer a stockbroker has been in the business, the less insight he seemed to have in how he made decisions. (LRF 278)**


***Sonquist, John A., Multivariate Model Building. Survey Research Center, University of Michigan, Ann Arbor, 1970. A good study and extensive bibliography. (LRF 413, 417)***


**Staël Von Holstein, Carl-Axel S., "Probabilistic Forecasting: An Experiment Related to the Stock Market," Organizational Behavior and Human Performance, 8 (1972), 139–158. (LRF 94, 137, 143)***

*Stark, Rodney, and Glock, Charles Y., "Will Ethics Be the Death of Christianity?" Transaction, 5 (June 1968), 7–14. Transaction is now called Society. (LRF 258)***

**Stekler, Herman O., Economic Forecasting. New York: Praeger, 1970. Stekler's articles are pasted together here with a few words. Stekler contrasts ex ante with ex post forecast errors, compares econometric with extrapolation and judgmental forecasts, and looks at the growth of error over the forecast horizon. (LRF 241)***

**Stevens, S.S., "Measurement, Psychophysics and Utility," in References M F E* Ju Fin N

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* Stone, LeRoy A. and Brosseau, James D., "Cross Validation of a System for Predicting Training Success of Medex Trainees," Psychological Reports, 33 (1973), 917–918. (LRF 56)


** Strickland, Lloyd H., "Surveillance and Trust," Journal of Personality, 26 (1958), 200–215. Shows how people "learn" that authoritarian management is successful even when it is not. (LRF 375)

** Strickler, George, "Actuarial, Naive Clinical, and Sophisticated Clinical Prediction of Pathology from Figure Drawings," Journal of Consulting Psychology, 31 (1967), 492–494. (LRF 379)


** Sudman, Seymour, and Bradburn, Norman, Response Effects in Surveys: A Review and Synthesis. Chicago: Aldine, 1974. Statistical analysis of 935 published studies. Interesting conclusion: for threatening questions, it is best to use self-administered questionnaires that should be filled out with no one else present, and preferably not done at work or any other place where there is a line of authority. (LRF 115, 116)


*** Summers, David A., Taliaferro, J.D., and Fletcher, D.J., "Subjective vs. Objective Description of Judgment Policy," Psychonomic Science, 18 (1970), 249–250. Subjects report their judgment to be complex but the data refute this view. (LRF 278)
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Discussion does, on occasion, lead to improvements over mere averaging. (*LRF* 120)


Survey of how firms forecast in the United States and in Britain. For long-range forecasting, subjective methods are most common, next extrapolation, then econometric methods. (*LRF* 425)

Concludes that even trained statisticians may have a poor intuitive feel for certain statistical phenomena. (*LRF* 89, 90, 356, 479, 486)


A highly influential paper. According to the *Social Sciences Citation Index*, it is cited, on average, over 50 times per year. It is reprinted in KAHNEMAN, SLOVIC, and TVERSKY [1982]. (*LRF* 88, 89).

This essay is written mostly in equations and numbers. (*LRF* 226, 488, 490)
References


Box-Jenkins forecasts were superior to econometric forecasts with respect to MAPE (4.8 vs. 6.0). On the other hand, the systematic error was larger for Box-Jenkins forecasts than for econometric forecasts (APE of +4.0 vs. -1.2). Overall, this study was classified as a tie. (LRF 408)


Looks at the value of input-output vs. an extrapolation method of forecasting (slight advantage to the I-O method). (LRF 265, 266)


Different extrapolation methods were used to provide forecasts of monthly sales for 20 products. Not much difference was found in the accuracy of the extrapolations (including one that was done by hand). Looks like a good study, but the write-up is incomplete. (LRF 177)


** Wason, P.C., "Regression in Reasoning?" British Journal of Psychology, 60 (1969), 471–480. More on Wason (1968b) and on how to improve subject's use of data. (LRF 378)


** Webster, Edward C., Decision Making in the Employment Interview. Montreal, Quebec: Eagle, 1964. The employment interview is a search for negative evidence. (LRF 88)

Weld says that he wants the credit for being the first person to use the multiple correlation method to identify sales potentials. Advocates an exploratory rather than a theoretical use of regression. (LRF 235)


How well can you forecast the number of children who will be born in the first 20 years of marriage by asking engaged couples? Fairly well for those who use family planning—otherwise poorly. (LRF 82)


This survey received only a 25% response rate, and the report is incomplete, yet what is there is interesting. (LRF 25, 389, 457)

Wherry, R.J., "A New Formula for Predicting the Shrinkage of the Coefficient of Multiple Correlation," Annals of Mathematical Statistics, 2 (1931), 440–457. (LRF 351)


Uses regression analysis to predict price/earnings ratios for 135 stocks. Finds that undervalued stocks in one cross section
did better in the next time period and overvalued stocks did worse. Cragg and Malkiel (1970) were unable to replicate the findings. (LRF 529)


References

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<td>Wise, George, &quot;The Accuracy of Technological Forecasts, 1890–1940,&quot; <em>Futures</em>, 8 (1976), 411–419. Examines and codes 1556 predictions made publicly by Americans between 1890 and 1940. <em>(LRF 95)</em></td>
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