

---

The Economics of  
Information and  
Uncertainty



---

A Conference Report  
Universities-National Bureau  
Committee for Economic Research

Number 32

National Bureau of Economic Research

---

# The Economics of Information and Uncertainty

Edited by John J. McCall



The University of Chicago Press

*Chicago and London*

---

JOHN J. MCCALL is professor of economics at the University of California, Los Angeles, and a consultant at the RAND Corporation. He is the author (with Dale Jorgenson and Roy Radner) of *Optimal Replacement Policy and Income Mobility, Racial Discrimination, and Economic Growth* and the editor (with Steve Lippman) of *Studies in the Economics of Search*.

The University of Chicago Press, Chicago 60637  
The University of Chicago Press, Ltd., London

© 1982 by the National Bureau of Economic Research  
All rights reserved. Published 1982  
Printed in the United States of America  
89 88 87 86 85 84 83 82 5 4 3 2 1

*Library of Congress Cataloging in Publication Data*  
Main entry under title:

The Economics of information and uncertainty.

(A Conference report / Universities—National  
Bureau Committee for Economic Research ; no. 32)

Bibliography: p.

Includes indexes.

1. Uncertainty (Information theory)—Congresses.
2. Risk—Congresses. 3. Economics—Decision making—Statistical methods—Congresses. I. McCall, John Joseph, 1933- II. Series: Conference report (Universities—National Bureau Committee for Economic Research)

HB133.E34 338.5 81-15930  
ISBN 0-226-55559-3 AACR2

---

## National Bureau of Economic Research

### Officers

Eli Shapiro, *chairman*  
Franklin A. Lindsay, *vice-chairman*  
Martin Feldstein, *president*

David G. Hartman, *executive director*  
Charles A. Walworth, *treasurer*  
Sam Parker, *director of finance and administration*

### Directors at Large

Moses Abramovitz  
George T. Conklin, Jr.  
Morton Ehrlich  
Martin Feldstein  
Edward L. Ginzton  
David L. Grove  
Walter W. Heller

Franklin A. Lindsay  
Roy E. Moor  
Geoffrey H. Moore  
Michael H. Moskow  
James J. O'Leary  
Peter G. Peterson  
Robert V. Roosa

Richard N. Rosett  
Bert Seidman  
Eli Shapiro  
Stephen Stamas  
Lazare Teper  
Donald S. Wasserman  
Marina v.N. Whitman

### Directors by University Appointment

Charles H. Berry, *Princeton*  
Otto Eckstein, *Harvard*  
Walter D. Fisher, *Northwestern*  
J. C. LaForce, *California, Los Angeles*  
Paul McCracken, *Michigan*  
Daniel McFadden, *Massachusetts Institute of Technology*  
Almarin Phillips, *Pennsylvania*

James L. Pierce, *California, Berkeley*  
Nathan Rosenberg, *Stanford*  
James Simler, *Minnesota*  
James Tobin, *Yale*  
William S. Vickrey, *Columbia*  
Dudley Wallace, *Duke*  
Burton A. Weisbrod, *Wisconsin*  
Arnold Zellner, *Chicago*

### Directors by Appointment of Other Organizations

Carl F. Christ, *American Economic Association*  
Robert C. Holland, *Committee for Economic Development*  
Stephan F. Kaliski, *Canadian Economics Association*  
Albert G. Matamoros, *National Association of Business Economists*  
Douglass C. North, *Economic History Association*

Rudolph A. Oswald, *American Federation of Labor and Congress of Industrial Organizations*  
Joel Popkin, *American Statistical Association*  
G. Edward Schuh, *American Agricultural Economics Association*  
James C. Van Horne, *American Finance Association*  
Charles A. Walworth, *American Institute of Certified Public Accountants*

### Directors Emeriti

Arthur Burns  
Emilio G. Collado  
Solomon Fabricant  
Frank Fetter

Thomas D. Flynn  
Gottfried Haberler  
Albert J. Hettinger, Jr.  
George B. Roberts

Murray Shields  
Boris Shishkin  
Willard L. Thorp  
Theodore O. Yntema

Since this volume is a record of conference proceedings, it has been exempted from the rules governing critical review of manuscripts by the Board of Directors of the National Bureau (resolution adopted 6 July 1948, as revised 21 November 1949 and 20 April 1968).

---

## Universities-National Bureau Committee for Economic Research

This committee is a cooperative venture of universities and the National Bureau. Its guiding objective is the encouragement of economic research on problems susceptible of objective treatment and of sufficiently broad scope to merit attention by institutions serving a scientific and public interest.

### *Participating Universities and Their Representatives*

Brown, Jerome L. Stein	New School for Social Research,
California (Berkeley), Daniel	Thomas Vietorisz
McFadden	New York, M. Ishaq Nadiri
California (Los Angeles), J. C.	New York State (Buffalo),
La Force	Daniel Hamberg
California (San Diego), Robert E.	North Carolina, Henry A. Latané
Engle	Northwestern, Robert Eisner
Carnegie-Mellon, Edward C. Prescott	Ohio State, Donald O. Parsons
Chicago, Lester G. Telser	Pennsylvania, Jere R. Behrman
Columbia, Robert Mundell	Pittsburgh, S. H. Chou
Cornell, S. C. Tsiang	Princeton, Edwin S. Mills
Duke, T. Dudley Wallace	Purdue, Patric H. Hendershott
Harvard, John V. Lintner	Queen's, Martin F. J. Prachowny
Illinois, Robert Resek	Rochester, Walter Y. Oi
Indiana, Franz Gehrels	Stanford, Moses Abramovitz
Iowa State, Dudley G. Lockett	Texas, Samuel L. Myers, Jr.
Johns Hopkins, Carl F. Christ	Toronto, Richard Bird
Maryland, Barbara Bergman	Vanderbilt, Anthony M. Tang
Massachusetts Institute of Technology,	Virginia, Richard T. Selden
Richard S. Eckaus	Washington (Saint Louis),
McGill, Alex G. Vicas	Hyman Minsky
Michigan, Harold T. Shapiro	Washington (Seattle), Richard
Michigan State, Victor Smith	W. Parks
Minnesota, James M. Henderson	Wisconsin, Leonard W. Weiss
	Yale, Richard Ruggles

### *National Bureau of Economic Research Representative*

Robert E. Lipsey

### *Members at Large*

Irma Adelman	Daniel Creamer	Walter S. Salant
Bela A. Balassa	Frank de Leeuw	George J. Stigler
Carl E. Beigie		

The officers of the Universities-National Bureau Committee are: Edwin S. Mills, chairman; Leonard W. Weiss, vice-chairman; and Christine Mortensen, secretary. The members of the Executive Committee are: Irma Adelman, Richard Bird, Robert Eisner, Robert E. Lipsey, Dudley G. Lockett, Edwin S. Mills, and Leonard W. Weiss.

---

# Contents

	<i>Prefatory Note</i>	ix
	Introduction <i>John J. McCall</i>	xi
1.	<b>Asset Prices in a Production Economy</b> William A. Brock <i>Comment:</i> Edward C. Prescott	1
2.	<b>Planning and Market Structure</b> Dennis W. Carlton <i>Comment:</i> Jean-Jacques Laffont <i>Comment:</i> Joseph M. Ostroy	47
3.	<b>Statistical Decision Theory Requiring Incentives for Information Transfer</b> Jerry R. Green <i>Comment:</i> Andrew Postlewaite <i>Comment:</i> John G. Riley	77
4.	<b>Corporate Financial Structure and Managerial Incentives</b> Sanford J. Grossman and Oliver D. Hart <i>Comment:</i> Hayne E. Leland	107
5.	<b>A Competitive Entrepreneurial Model of a Stock Market</b> Richard E. Kihlstrom and Jean-Jacques Laffont <i>Comment:</i> David Levhari	141

6.	<b>Multiperiod Securities and the Efficient Allocation of Risk: A Comment on the Black-Scholes Option Pricing Model</b>	203
	David M. Kreps	
7.	<b>The Matching Process as a Noncooperative Bargaining Game</b>	233
	Dale T. Mortensen	
	<i>Comment:</i> Peter Diamond	
	<i>Comment:</i> Steven A. Lippman	
8.	<b>The Capacity Expansion Process in a Growing Oligopoly: The Case of Corn Wet Milling</b>	259
	Michael E. Porter and A. Michael Spence	
	<i>Comment:</i> Sidney G. Winter	
	List of Contributors	317
	Author Index	319
	Subject Index	321

---

## Prefatory Note

This volume contains the papers presented at the Conference on the Economics of Information and Uncertainty held in Boston, 14–16 June 1979, sponsored by the Universities–National Bureau Committee for Economic Research. Funds for the conference were provided by the National Science Foundation; we are indebted for its support. We also thank John J. McCall, who served as chairman of the conference and editor of this volume.

*Executive Committee, June 1979*

Edwin S. Mills, chairman

Irma Adelman

Richard Bird

Robert Eisner

Dudley G. Lockett

Leonard W. Weiss

Robert E. Lipsey, NBER  
representative

