

This PDF is a selection from an out-of-print volume from the National Bureau of Economic Research

Volume Title: Economic Research: Retrospect and Prospect Vol 6: Human Resources

Volume Author/Editor: Schultz, Theodore W.

Volume Publisher: UMI

Volume ISBN: 0-87014-255-0

Volume URL: <http://www.nber.org/books/schu72-1>

Publication Date: 1972

Chapter Title: Front matter to "Economic Research: Retrospect and Prospect Vol 6: Human Resources"

Chapter Author: Theodore W. Schultz

Chapter URL: <http://www.nber.org/chapters/c4125>

Chapter pages in book: (p. -23 - 0)

Economic Research: Retrospect and Prospect

HUMAN RESOURCES

Fiftieth Anniversary Colloquium VI



NATIONAL BUREAU OF ECONOMIC RESEARCH
NEW YORK 1972

Distributed by COLUMBIA UNIVERSITY PRESS
NEW YORK AND LONDON

Copyright © 1972 by the National Bureau of Economic Research, Inc.

All rights reserved

Library of Congress card number: 73-187320

ISBN: 0-87014-255-0 (hard cover)

ISBN: 0-87014-280-1 (paperback)

Printed in the United States of America

Human Resources

NATIONAL BUREAU OF ECONOMIC RESEARCH

General Series 96

2,005,984

National Bureau of Economic Research, Inc.
Fiftieth Anniversary Colloquium, 6th, Atlanta, 1971.

Human resources by Theodore W. Schultz, New York,
National Bureau of Economic Research; distributed by
Columbia University Press, 1972.

xvii, 97 p. 24 cm. (Economic research: retrospect and prospect
v. 6) (National Bureau of Economic Research. General series,
96) (Fiftieth Anniversary Colloquium series)

Bibliography: p. 73-84.

I. Human capital—Congresses. I. Schultz, Theodore William,
1902— II. Title. III. Series. IV. Series: National Bureau of
Economic Research General series, 96.

HC101.E3 vol. 6

330.973 s

73-187320

[HB501.5]

[331]

MATERIAL SUBMITTED BY PUBLISHER.

NATIONAL BUREAU OF ECONOMIC RESEARCH

OFFICERS

Arthur F. Burns, <i>Honorary Chairman</i>	F. Thomas Juster, <i>Vice President-Research</i>
Walter W. Heller, <i>Chairman</i>	Hal B. Lary, <i>Vice President-Research</i>
J. Wilson Newman, <i>Vice Chairman</i>	Robert E. Lipsey, <i>Vice President-Research</i>
John R. Meyer, <i>President</i>	Edward K. Smith, <i>Vice President</i>
Thomas D. Flynn, <i>Treasurer</i>	Joan R. Tron, <i>Director of Publications</i>
Douglas H. Eldridge, <i>Vice President-Executive Secretary</i>	Charlotte Boschan, <i>Director of Data Processing</i>
Victor R. Fuchs, <i>Vice President-Research</i>	Evan Stephens, <i>Controller</i>

DIRECTORS AT LARGE

Atherton Bean, <i>International Multifoods Corporation</i>	Vivian W. Henderson, <i>Clark College</i>
Joseph A. Beirne, <i>Communications Workers of America</i>	John R. Meyer, <i>Yale University</i>
Arthur F. Burns, <i>Board of Governors of the Federal Reserve System</i>	J. Irwin Miller, <i>Cummins Engine Company, Inc.</i>
Wallace J. Campbell, <i>Foundation for Cooperative Housing</i>	Geoffrey H. Moore, <i>Bureau of Labor Statistics</i>
Erwin D. Canham, <i>Christian Science Monitor</i>	J. Wilson Newman, <i>Dun & Bradstreet, Inc.</i>
Solomon Fabricant, <i>New York University</i>	James J. O'Leary, <i>United States Trust Company of New York</i>
Frank W. Fetter, <i>Hanover, New Hampshire</i>	Alice M. Rivlin, <i>Brookings Institution</i>
Eugene P. Foley, <i>James A. Reed & Co., Ltd.</i>	Robert V. Roosa, <i>Brown Brothers, Hariman & Co.</i>
Eli Goldston, <i>Eastern Gas and Fuel Associates</i>	Boris Shishkin, <i>Washington, D.C.</i>
David L. Grove, <i>International Business Machines Corporation</i>	Arnold M. Soloway, <i>Jamaicaway Tower, Boston, Massachusetts</i>
Walter W. Heller, <i>University of Minnesota</i>	Lazare Teper, <i>International Ladies' Garment Workers' Union</i>
	Donald B. Woodward, <i>Riverside, Connecticut</i>
	Theodore O. Yntema, <i>Oakland University</i>

DIRECTORS BY UNIVERSITY APPOINTMENT

Moses Abramovitz, <i>Stanford</i>	Kelvin J. Lancaster, <i>Columbia</i>
Gardner Ackley, <i>Michigan</i>	Maurice W. Lee, <i>North Carolina</i>
Charles H. Berry, <i>Princeton</i>	Almarin Phillips, <i>Pennsylvania</i>
Francis M. Boddy, <i>Minnesota</i>	Lloyd G. Reynolds, <i>Yale</i>
Otto Eckstein, <i>Harvard</i>	Robert M. Solow, <i>Massachusetts Institute of Technology</i>
Walter D. Fisher, <i>Northwestern</i>	Henri Theil, <i>Chicago</i>
R. A. Gordon, <i>California</i>	Thomas A. Wilson, <i>Toronto</i>
Robert J. Lampman, <i>Wisconsin</i>	

DIRECTORS BY APPOINTMENT OF OTHER ORGANIZATIONS

Eugene A. Birnbaum, <i>American Management Association</i>	Douglas G. Hartle, <i>Canadian Economics Association</i>
Emilio G. Collado, <i>Committee for Economic Development</i>	Walter E. Hoadley, <i>American Finance Association</i>
Thomas D. Flynn, <i>American Institute of Certified Public Accountants</i>	Douglass C. North, <i>Economic History Association</i>
Nathaniel Goldfinger, <i>American Federation of Labor and Congress of Industrial Organizations</i>	Charles B. Reeder, <i>National Association of Business Economists</i>
Harold G. Halcrow, <i>American Agricultural Economics Association</i>	Willard L. Thorp, <i>American Economic Association</i>
	W. Allen Wallis, <i>American Statistical Association</i>

DIRECTORS EMERITI

Percival F. Brundage	Albert J. Hettinger, Jr.	Murray Shields
Gottfried Haberler	George B. Roberts	Joseph H. Willits

SENIOR RESEARCH STAFF *

Gary S. Becker	Daniel M. Holland	Ilse Mintz	Anna J. Schwartz
Phillip Cagan	John F. Kain	Geoffrey H. Moore †	Robert P. Shay
Solomon Fabricant	John W. Kendrick	M. Ishaq Nadiri	Carl S. Shoup ‡
Milton Friedman	Irving B. Kravis	Nancy Ruggles	Victor Zarnowitz
Raymond W. Goldsmith	Jacob Mincer	Richard Ruggles	

* Also includes President, Vice Presidents-Research, and Director of Data Processing.

† On leave.

‡ Special consultant.

Relation of National Bureau Directors to Publications
Reporting Proceedings of the Fiftieth Anniversary Colloquia

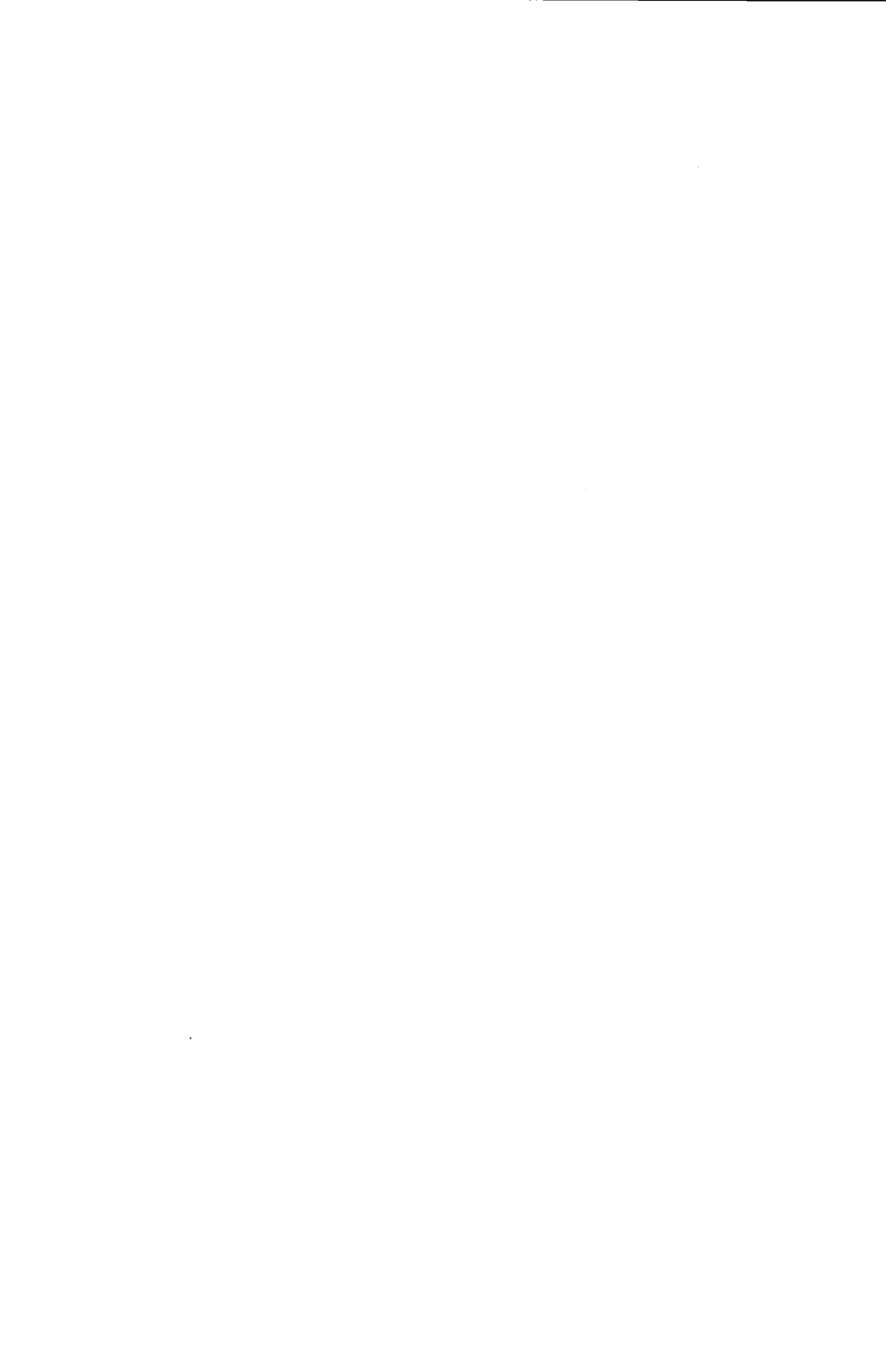
Since the present volume is a record of colloquium proceedings, it has been exempted from the rules governing submission of manuscripts to, and critical review by, the Board of Directors of the National Bureau.

*(Resolution adopted July 6, 1948, as revised
November 21, 1949, and April 20, 1968)*

Prefatory Note

This volume of the Fiftieth Anniversary Series contains the proceedings of the Human Resources Colloquium, which was held on the campus of Clark College, Atlanta University, Atlanta, Georgia on May 13, 1971. We are indebted to those members of the Bureau's Board of Directors who served on the committee to plan and coordinate the session: Charles H. Berry, Wallace J. Campbell, Eugene P. Foley, Marion B. Folsom (currently not a Board member), Eli Goldston, Vivian W. Henderson, Harry W. Laidler (deceased), J. Irwin Miller, Boris Shishkin, and Lazare Teper. We wish to acknowledge, too, the splendid cooperation of the faculty of the Department of Economics at Clark College, who contributed substantial time and effort to ensuring the success of the Human Resources Colloquium. Finally, we are grateful to Ester Moskowitz, Hedy D. Jellinek, and Ruth Ridler, who prepared the manuscript for publication.

GARY S. BECKER



Fiftieth Anniversary Colloquium Series

To commemorate its fiftieth anniversary the National Bureau of Economic Research sponsored a series of colloquia to explore the effects of pending and anticipated policy issues on future research priorities for areas of long-standing Bureau concern. As a basis for the panel and audience discussions, economists specializing in the subject area prepared papers in which they reviewed relevant research advances through time and presented their opinions for the direction of future effort. These papers, and in some instances edited transcripts of panelists' comments, appear as part of the National Bureau's Fiftieth Anniversary publications series. Papers developed for the colloquia and publications series and participants in the program included:

THE BUSINESS CYCLE TODAY September 24, 1970—New York City

Moderators:

Morning session: Paul A. Samuelson
Afternoon session: F. Thomas Juster

Presentations:

- | | |
|---|--|
| "Dating American Growth Cycles" | <i>Ilse Mintz</i> |
| "The 'Recession' of 1969-1970" | <i>Solomon Fabricant</i> |
| "The Cyclical Behavior of Prices" | <i>Geoffrey H. Moore</i> |
| "Forecasting Economic Conditions: The Record and the Prospect" | <i>Victor Zarnowitz</i> |
| "Econometric Model Simulations and the Cyclical Characteristics of the U.S. Economy" | <i>Victor Zarnowitz</i> |
| "A Study of Discretionary and Nondiscretionary Monetary and Fiscal Policies in the Context of Stochastic Macroeconometric Models" | <i>Yoel Haitovsky and Neil Wallace</i> |

Panelists:

Morning session: Otto Eckstein, Henry C. Wallich

Afternoon session: Bert G. Hickman, Arthur M. Okun

FINANCE AND CAPITAL MARKETS

October 22, 1970—New York City

Moderator: Robert V. Roosa**Presentation:**

"Finance and Capital Markets"

*John Lintner***Panelists:** William J. Baumol, Sidney Homer, James J. O'Leary**A ROUNDTABLE ON POLICY ISSUES AND RESEARCH
OPPORTUNITIES IN INDUSTRIAL ORGANIZATION**

November 5, 1970—Chicago, Illinois

Moderator: Victor R. Fuchs**Presentations:**

"Industrial Organization: Boxing the Compass"

James W. McKie

"Antitrust Enforcement and the Modern Corporation"

Oliver E. Williamson"Issues in the Study of Industrial Organization in a Regime of Rapid
Technical Change"*Richard R. Nelson*

"Industrial Organization: A Proposal for Research"

Ronald H. Coase

PUBLIC EXPENDITURES AND TAXATION

December 2, 1970—Washington, D.C.

Moderator: Walter W. Heller

Presentation:

“Quantitative Research in Taxation and Government Expenditure”

Carl S. Shoup

Panelists: James M. Buchanan, Richard R. Musgrave

ECONOMIC GROWTH

December 10, 1970—San Francisco, California

Moderator: R. Aaron Gordon

Presentation:

“Is Growth Obsolete?”

William D. Nordhaus and James Tobin

Panelists: Moses Abramovitz, Robin C. O. Matthews

HUMAN RESOURCES

May 13, 1971—Atlanta, Georgia

Moderator: Gary S. Becker

Presentation:

“Human Capital: Policy Issues and Research Opportunities”

Theodore W. Schultz

Panelists: Alice M. Rivlin, Gerald S. Somers

THE FUTURE OF ECONOMIC RESEARCH
April 23, 1971—South Brookline, Massachusetts

Presentation:

“Quantitative Economic Research: Trends and Problems”

Simon Kuznets

Contents

FOREWORD	Gary S. Becker	xv
ACKNOWLEDGMENTS		xix
HUMAN CAPITAL: POLICY ISSUES AND RESEARCH OPPORTUNITIES	Theodore W. Schultz	1
I. Setting and Scope		2
II. The Business of Economic Research		11
Changes in Economics		12
Role of Economic Puzzles		16
Resources for Economic Research		19
Response to Demand		19
Further Reflections on the Demand		21
III. An Offering of Research Opportunities		22
Public and Private Demands by Classes of Policy Issues		23
Schooling and Higher Education: The Question of Equity		24
Schooling and Higher Education: Economic Efficiency		28
Rate of Returns Indications		29
Unemployment Effects		34
Productive Life of Educational Capital		35
Distribution of Educational Capital		35
Tied Women		37
Job and School Discrimination		39
Capital Market		42
Tax Laws		43
Incentives and Information		43
Postschool Investment in Human Capital		45
Preschool Investment in Human Capital		46
Human Capital Approach to Migration		47
Health as an Investment		49
The Search for Information		51
Fertility, Children, and Population		52

The Challenge of Economic Puzzles	58
The Shrinkage of Capital Relative to Income in National Economic Accounting	59
The Growing Disbelief in GNP	60
The Leontief Paradox	64
Distribution of Personal Income	65
The Farm Income–Farm Wealth Puzzle	65
The Failure of Migration and Schooling as Solutions to Farm Poverty	66
Advances in the Technology of Economics	67
Selected Bibliography	73
DISCUSSION	85
INDEX	93

Foreword

Economists have been aware of the effects of education and training on earnings and productivity ever since Adam Smith's comment that "a man educated at the expence of much labour and time to any of those employments which require extraordinary dexterity and skill may be compared to one of those expensive machines. The work which he learns to perform, it must be expected, over and above the usual wages of common labour, will replace to him the whole expence of his education, with at least the ordinary profits of an equally valuable capital."¹ We need only note here the statements by McCulloch, that "man himself should . . . be considered as forming a part of the national capital";² of Marshall, that "the most valuable of all capital is that invested in human beings";³ and of Fisher, that "the 'skill' of a mechanic is not wealth in addition to the man himself; it is the 'skilled mechanic' who should be put in the category of wealth."⁴

Yet, prior to the mid-fifties this awareness was not used to develop a major tool of analysis.⁵ Investment in human beings was largely ignored in the discussions of economic growth, labor incomes, inequality in personal income distribution, international comparative advantage and specialization, savings and investment, unemployment and job turnover, or consumer expenditure patterns.

All this changed dramatically in the fifties, stimulated largely by a few puzzles and paradoxes that, as Schultz rightly emphasizes, contribute so much to advances in economic thinking. Studies largely at the National Bureau⁶ showed that the growth in labor and capital as con-

¹ *Wealth of Nations*, p. 101, Modern Library Edition. Of course, Petty's calculations of the money value of a human being preceded Smith's work.

² See his *The Principles of Political Economy*, Alex Murray & Son, 1970, p. 66. I owe this reference to B. F. Kiker's "The Historical Roots of the Concept of Human Capital," *Journal of Political Economy*, October 1966.

³ See his *Principles of Economics*, Macmillan and Co., 1938, p. 564.

⁴ See his *The Nature of Capital and Income*, Macmillan and Co., 1930, p. 9.

⁵ The one exception is the important study by Milton Friedman and Simon Kuznets *Income from Independent Professional Practice*, NBER, 1945.

⁶ See, for example, Moses Abramovitz, *Resources and Output Trends in the United States Since 1870*, NBER, 1956.

ventionally measured failed dismally in explaining the growth in per capita incomes during the twentieth century in the United States. Or, contrary to expectations from factor-endowment trade theory, the United States apparently exports labor-intensive and imports capital-intensive goods.⁷ A giant, yet in retrospect obvious, step in resolving both puzzles was the recognition that labor cannot be measured simply by man-hours since trained persons are more productive than other persons. Thus, the United States exports goods that use relatively large amounts of *skilled* labor, and the true labor input in the United States grew much faster than man-hours because investment in education and other training grew rapidly.

In the last fifteen years the analysis of investment in human capital has developed from these modest beginnings into a major field of study responsible for a significant breakthrough in our understanding of economic behavior. Its vitality is attested to by more than 1,000 entries in Blaug's bibliography of writings on the economics of education alone, by the prominence of economists in the National Academy of Education (chartered in 1965), by the proliferation of courses and research centers, by the demand for new Ph.D.'s with this specialty, by chapters in the annual reports of the Council of Economic Advisers, and by recognition from quarters initially hostile.

Any field that develops so rapidly is bound to take on trappings of a fad since much of the work is necessarily mechanical, repetitive, and of embarrassingly low quality. The analysis of investment in human capital has certainly had these trappings, and some critics are patiently waiting for the balloon to burst. Although periods of digestion and slow advance are inevitable, I am confident that this field will continue to grow rather than diminish in importance. My confidence results from the close ties of the kind already mentioned between theoretical developments and discussion, and empirical data and problems. This intimate relation of theory and observation has built a solid foundation that cannot easily be torn down or ignored.

What about future developments? Schultz gives an excellent discussion of the demand and supply considerations that determine the course of any economic research. He also offers a wide-ranging and insightful set of research opportunities on human capital provided by public and private demands for information, unsolved economic puzzles,

⁷ See Wassily Leontief, "Factor Proportions and the Structure of American Trade: Further Theoretical and Empirical Analysis," *Review of Economics and Statistics*, 38, 1956, p. 386.

and advances in economic theory and empirical work. My own crystal ball says that the major breakthrough during the next decade will come in the application of human capital analysis to behavior in the nonmarket sector, an application also stressed by Schultz.

Practically all studies of the effects of investment in human capital have dealt with earnings, unemployment, occupation choice, and similar market decisions. Yet, education, for example, also affects whom one marries, the number of one's children and the amount invested in each child, labor force participation, health, expenditure patterns on goods and services, whether and how one votes, and many other dimensions of nonmarket behavior. Recent developments in the theory of the allocation of time and household production functions provide the tools for a rigorous analysis of the effects of human capital in the nonmarket sector. Before this decade is over we will have, I venture to guess, reliable and valuable estimates of the effects of human capital on nonmarket rates of return and productivity, and of the variety of changes in household decisions and expenditures of time and goods that are induced by a change in human capital.

GARY S. BECKER
The University of Chicago



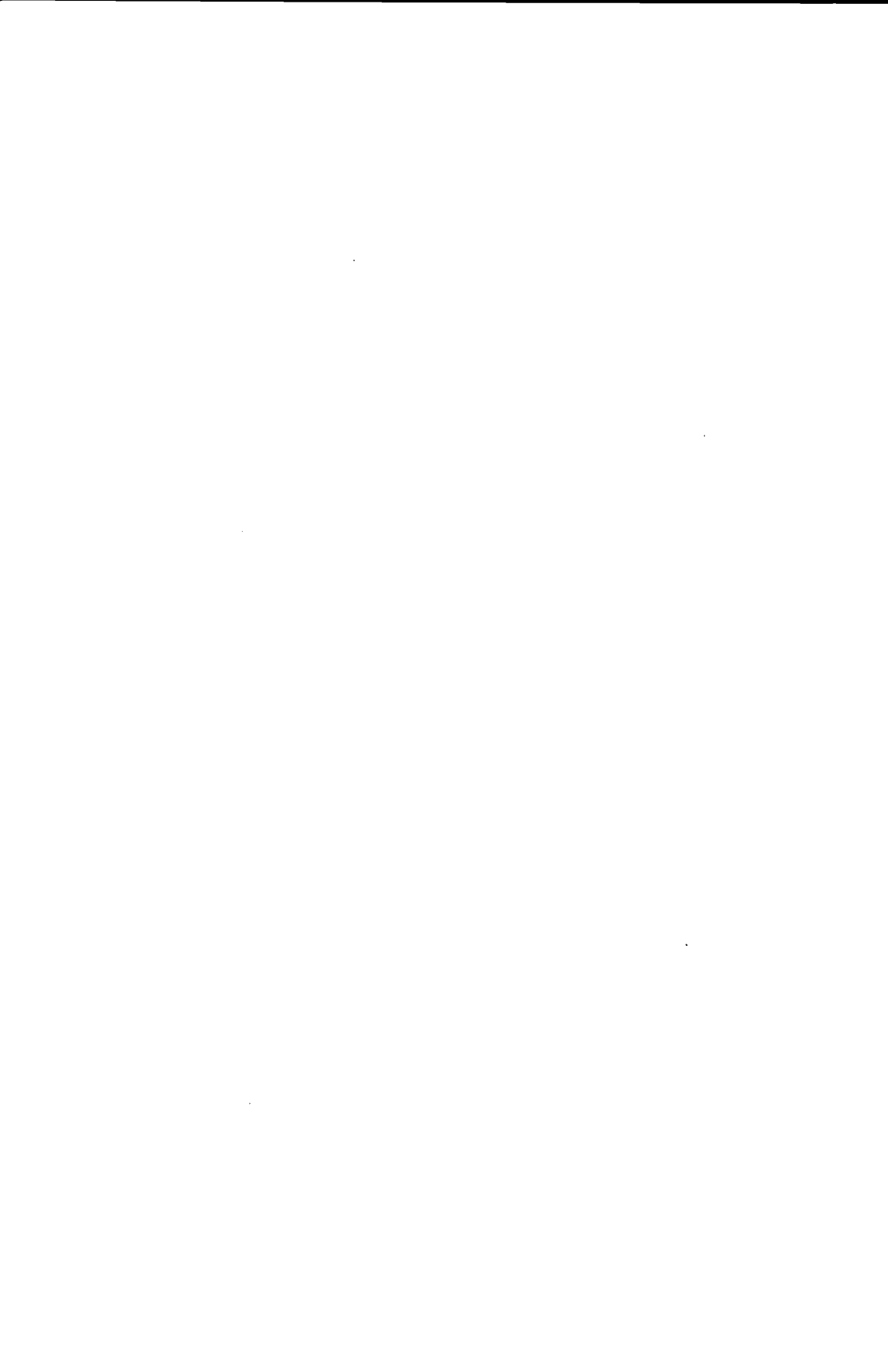
Acknowledgments

John R. Meyer arranged for a small group to convene with me at the meetings of the directors of the National Bureau, September 20, 1969, to consider the objectives and scope of the proposed survey. Gary Becker served as chairman of this group. In doing the survey, I drew heavily upon my work that had been made possible by the generous grants of the Ford Foundation and upon the Ph.D. research of students supported by generous training grants in the area of human capital provided by the National Institute of Mental Health. It will be evident to the reader that I was privileged in having access to numerous as yet unpublished papers in the area of human capital. I owe a special debt to colleagues who critically reviewed early drafts of this survey: Gary S. Becker, Mary Jean Bowman, Samuel Bowles, Barry R. Chiswick, Richard B. Freeman, Zvi Griliches, W. Lee Hansen, Harry G. Johnson, Simon Kuznets, Jacob Mincer, Marc Nerlove, Yoram Ben-Porath, T. Paul Schultz, George J. Stigler, Luther G. Tweeten, Burton A. Weisbrod, and Finis Welch.

May 13, the day at Atlanta sponsored by the National Bureau to "test" the product, came off well indeed. I profited professionally from the presentations of the two panelists, Alice Rivlin and Gerald Somers, and from the incisive comments by members of the large group in attendance. Gary Becker presided and also entered actively into the discussions.

Nancy Steinthal of the NBER as "entrepreneur" and my secretary, Susan Gallager, as "translator" of what I wrote did much to make my task a pleasure. In preparing the bibliography I was assisted by Virginia Thurner.

THEODORE W. SCHULTZ
The University of Chicago



Human Resources

