

This PDF is a selection from a published volume from the National Bureau of Economic Research

Volume Title: The Theory and Empirical Analysis of Production

Volume Author/Editor: Murray Brown, editor

Volume Publisher: NBER

Volume ISBN: 0-870-14486-3

Volume URL: <http://www.nber.org/books/brow67-1>

Conference Date:

Publication Date: 1967

Chapter Title: Front matter, The Theory and Empirical Analysis of Production

Chapter Author(s): Murray Brown

Chapter URL: <http://www.nber.org/chapters/c1472>

Chapter pages in book: (p. -10 - 0)

*THE THEORY AND  
EMPIRICAL ANALYSIS  
OF PRODUCTION*

NATIONAL BUREAU OF ECONOMIC RESEARCH  
CONFERENCE ON RESEARCH IN INCOME AND WEALTH

*THE THEORY AND  
EMPIRICAL ANALYSIS  
OF PRODUCTION*

MURRAY BROWN, *editor*  
GEORGE WASHINGTON UNIVERSITY

*Studies in Income and Wealth*

VOLUME THIRTY-ONE

*by the Conference  
on Research in Income  
and Wealth*



NATIONAL BUREAU OF ECONOMIC RESEARCH  
NEW YORK

*Distributed by* COLUMBIA UNIVERSITY PRESS  
NEW YORK AND LONDON 1967

Copyright © 1967 by the National Bureau of Economic Research

*All Rights Reserved*

L.C. Card: 66-28827

Printed in the United States of America

COMMENT	<i>Ronald G. Bodkin</i>	322
	<i>Joel Popkin</i>	327
	<i>Evsey D. Domar</i>	330
	<i>Hans Neisser</i>	331
	<i>Murray Brown</i>	333
REPLY BY	<i>Griliches</i>	335
THE INFLUENCE OF RESEARCH AND EDUCATION ON CES PRODUCTION RELATIONS	<i>Murray Brown and Alfred H. Conrad</i>	341
COMMENT	<i>Nestor E. Terleckyj</i>	372
	<i>Burton A. Weisbrod</i>	379
	<i>Zvi Griliches</i>	388
REPLY BY	<i>Brown and Conrad</i>	389
VINTAGE EFFECTS AND THE TIME PATH OF INVESTMENT IN PRODUCTION RELATIONS	<i>Michael Gort and Raford Boddy</i>	395
COMMENT	<i>Anne P. Carter</i>	422
	<i>Peter A. Diamond</i>	427
REPLY BY	<i>Gort and Boddy</i>	429
CAPITAL AND LABOR IN PRODUCTION: SOME DIRECT ESTIMATES		
	<i>Robert Eisner</i>	431
COMMENT	<i>Bert G. Hickman</i>	462
	<i>Dale W. Jorgenson</i>	467
	<i>Evsey D. Domar</i>	471
REPLY BY	<i>Eisner</i>	472
<i>Production Analysis and Economic Policy</i>		
AGGREGATIVE PRODUCTION FUNCTIONS AND ECONOMIC GROWTH POLICY	<i>Richard R. Nelson</i>	479
COMMENT	<i>Hollis B. Chenery</i>	494
	<i>James W. Knowles</i>	496
AUTHOR INDEX		501
SUBJECT INDEX		504

# CONTENTS

INTRODUCTION	<i>Murray Brown</i>	3
COMMENTS ON THE COBB-DOUGLAS PRODUCTION FUNCTION		
	<i>Paul H. Douglas</i>	15
	<i>Review of Recent Theoretical and Empirical Developments in the Field of Production</i>	
SOME RECENT DEVELOPMENTS IN THE THEORY OF PRODUCTION		
	<i>Robert M. Solow</i>	25
COMMENT	<i>James Tobin</i>	50
RECENT EMPIRICAL STUDIES OF THE CES AND RELATED PRODUCTION FUNCTIONS	<i>Marc Nerlove</i>	55
COMMENT	<i>Edwin Mansfield</i>	122
	<i>Evsey D. Domar</i>	126
	<i>Zvi Griliches</i>	126
	<i>Raford Boddy</i>	127
	<i>Murray Brown</i>	133
	<i>New Approaches to Production Function Analysis</i>	
POSTWAR PRODUCTION RELATIONSHIPS IN CANADA		
	<i>N. H. Lithwick, George Post, and T. K. Rymes</i>	139
COMMENT	<i>Derek A. White</i>	258
	<i>Thomas A. Wilson</i>	265
REPLY BY	<i>Lithwick, Post, and Rymes</i>	271
PRODUCTION FUNCTIONS IN MANUFACTURING: SOME PRELIMINARY RESULTS	<i>Zvi Griliches</i>	275





## PREFATORY NOTE

This volume of *Studies in Income and Wealth* contains the papers presented at the Conference on Production Relations held in October 1965 at the Carnegie International Center in New York City. The Program Committee consisted of Alfred Conrad, Evsey Domar, S. A. Goldberg, James F. Knowles, and Murray Brown, who served as chairman and conference editor. In addition we are indebted to Ester Moskowitz for editorial work and H. Irving Forman for charting.

### *Executive Committee, 1966-67*

Robert Eisner, *Chairman*

Jack Alterman

Zvi Griliches

Donald J. Daly

F. Thomas Juster

Evsey D. Domar

Irving B. Kravis

Graeme S. Dorrance

Milton Moss

Morris R. Goldman

Mildred E. Courtney, *Secretary*

*Relation of National Bureau Directors to  
Publications Reporting Conference Proceedings*

Since the present volume is a record of conference 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. It has, however, been reviewed and accepted for publication by the Director of Research.

*Resolution adopted July 6, 1948,  
as revised, November 21, 1949*

# NATIONAL BUREAU OF ECONOMIC RESEARCH 1967

## OFFICERS

Arthur F. Burns, *Chairman*  
Theodore O. Yntema, *Vice Chairman*  
Donald B. Woodward, *Treasurer*  
Geoffrey H. Moore, *Director of Research*

Douglas H. Eldridge, *Executive Director*  
Hal B. Lary, *Associate Director of Research*  
Victor R. Fuchs, *Associate Director of Research*

## DIRECTORS AT LARGE

Joseph A. Beirne, *Communications Workers of America*  
Wallace J. Campbell, *Foundation for Cooperative Housing*  
Erwin D. Canham, *Christian Science Monitor*  
Solomon Fabricant, *New York University*  
Frank W. Fetter, *Northwestern University*  
Marion B. Folsom, *Eastman Kodak Co.*  
Crawford H. Greenewalt, *E. I. du Pont de Nemours & Co.*  
Gabriel Hauge, *Manufacturers Hanover Trust Co.*  
Walter W. Heller, *University of Minnesota*  
Albert J. Hettinger, Jr., *Lazard Frères and Co.*

Harry W. Laidler, *League for Industrial Democracy*  
Geoffrey H. Moore, *National Bureau of Economic Research*  
Charles G. Mortimer, *General Foods Corp.*  
J. Wilson Newman, *Dun & Bradstreet, Inc.*  
George B. Roberts, *Larchmont, N.Y.*  
Robert V. Roosa, *Brown Brothers Harriman & Co.*  
Boris Shishkin, *American Federation of Labor and Congress of Industrial Organizations*  
Gus Tyler, *International Ladies' Garment Workers' Union*  
Joseph H. Willits, *Langhorne, Pa.*  
Donald B. Woodward, *A. W. Jones and Co.*

## DIRECTORS BY UNIVERSITY APPOINTMENT

Francis M. Boddy, *Minnesota*  
Arthur F. Burns, *Columbia*  
Lester V. Chandler, *Princeton*  
Melvin G. de Chazeau, *Cornell*  
Walter D. Fisher, *Northwestern*  
R. A. Gordon, *California*  
Harold M. Groves, *Wisconsin*  
Gottfried Haberler, *Harvard*

Douglas G. Hartle, *Toronto*  
Maurice W. Lee, *North Carolina*  
Lloyd G. Reynolds, *Yale*  
Theodore W. Schultz, *Chicago*  
Robert M. Solow, *Massachusetts Institute of Technology*  
Willis J. Winn, *Pennsylvania*

## DIRECTORS BY APPOINTMENT OF OTHER ORGANIZATIONS

Thomas D. Flynn, *American Institute of Certified Public Accountants*  
Nathaniel Goldfinger, *American Federation of Labor and Congress of Industrial Organizations*  
Harold G. Halcrow, *American Farm Economic Association*  
Walter E. Hoadley, *American Finance Association*

Douglass C. North, *Economic History Association*  
Murray Shields, *American Management Association*  
Willard L. Thorp, *American Economic Association*  
W. Allen Wallis, *American Statistical Association*

Theodore O. Yntema, *Committee for Economic Development*

## DIRECTORS EMERITI

Percival F. Brundage  
Shepard Morgan

Harry Scherman

George Soule  
Jacob Viner

## SENIOR RESEARCH STAFF

Moses Abramovitz	Solomon Fabricant	F. Thomas Juster	Jacob Mincer
Gary S. Becker	Milton Friedman	C. Harry Kahn	Ilse Mintz
Gerhard Bry	Victor R. Fuchs	John W. Kendrick	Geoffrey H. Moore
Arthur F. Burns	Raymond W. Goldsmith	Irving B. Kravis	Robert P. Shay
Phillip Cagan	Jack M. Guttentag	Hal B. Lary	George J. Stigler
James S. Earley	Daniel M. Holland	Robert E. Lipsey	Norman B. Ture
	Victor Zarnowitz		