

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

Volume Title: Changes in Labor Cost During Cycles in Production and Business

Volume Author/Editor: Thor Hultgren

Volume Publisher: NBER

Volume ISBN: 0-87014-388-3

Volume URL: <http://www.nber.org/books/hult60-1>

Publication Date: 1960

Chapter Title: Front Matter to "Changes in Labor Cost During Cycles in Production and Business"

Chapter Author: Thor Hultgren

Chapter URL: <http://www.nber.org/chapters/c1704>

Chapter pages in book: (p. -21 - -7)

Changes in Labor Cost
During
Cycles in Production and Business

THOR HULTGREN

Assisted by Dorothy Dorfman Green

OCCASIONAL PAPER 74

NATIONAL BUREAU OF ECONOMIC RESEARCH, INC.

1960

Copyright 1960 by
NATIONAL BUREAU OF ECONOMIC RESEARCH, INC.
261 Madison Avenue, New York 16, N. Y.

All Rights Reserved

LIBRARY OF CONGRESS CATALOG CARD NUMBER: 59-12554

PRICE: \$1.50

Printed in the United States of America
by Quinn & Boden Company, Inc., Rahway, New Jersey

2,005,997

National Bureau of Economic Research, Inc.

Hultgren, Thor, 1902-

Changes in labor cost during cycles in production and business (by) Thor Hultgren, assisted by Dorothy Dorfman Green. (New York, National Bureau of Economic Research, 1960.

85 p. illus. 23 cm. (National Bureau of Economic Research. Occasional paper 74)

1. Labor productivity—U. S. i. Title.

H11.N2432 nb. 74

338.01

59-12554 †

MATERIAL SUBMITTED BY PUBLISHER.



2,005,997

National Bureau of Economic Research, Inc.

Hultgren, Thor, 1902-

Changes in labor cost during cycles in production and business, by Thor Hultgren, assisted by Dorothy Dorfman Green. (New York, National Bureau of Economic Research, 1960.

85 p. illus. 23 cm. (National Bureau of Economic Research. Occasional paper 74)

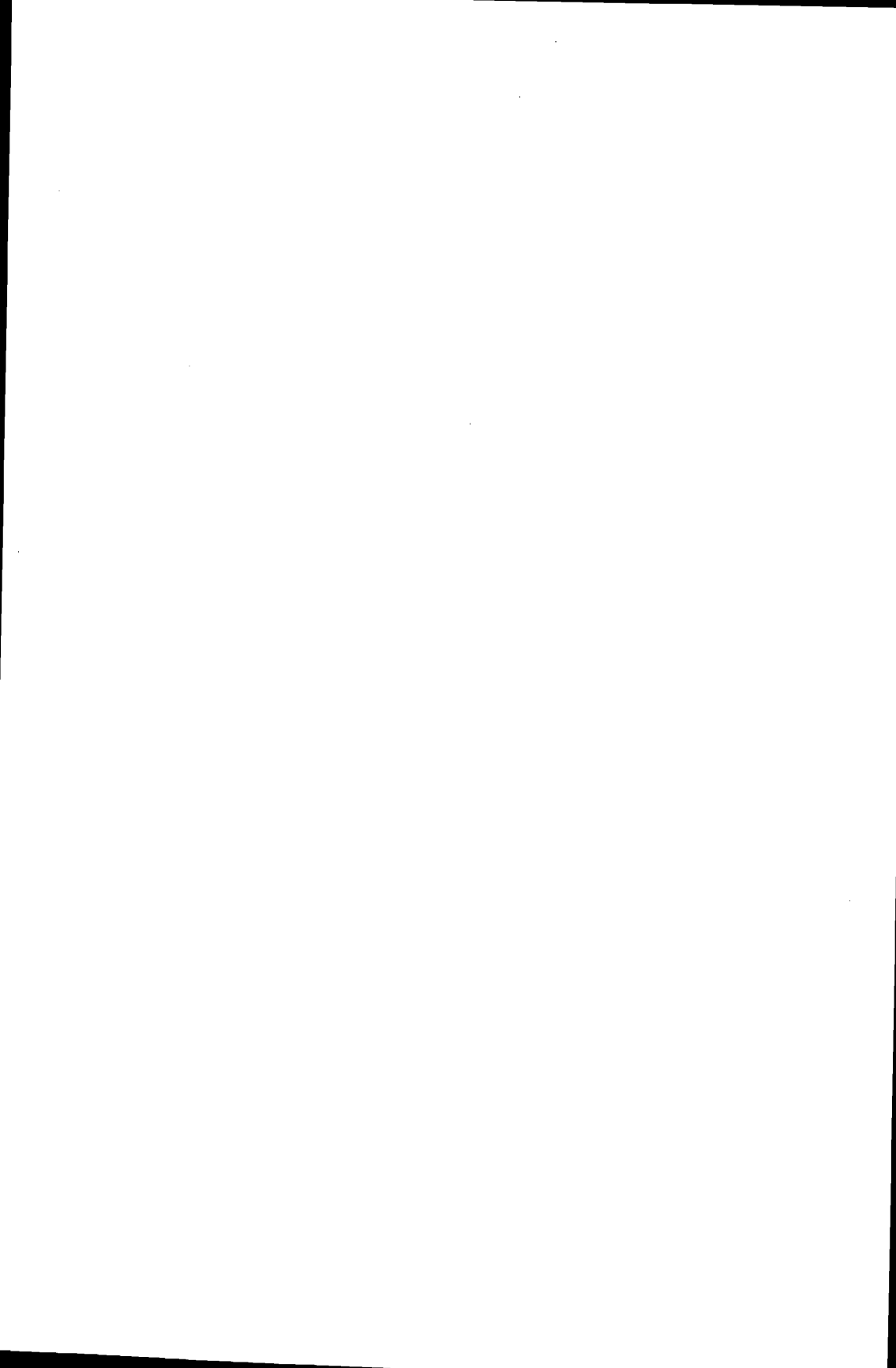
1. Labor productivity--U. S. I. Title.

H11.N2432 no. 74

838.01

59-12554 †

MATERIAL SUBMITTED BY PUBLISHER.



NATIONAL BUREAU OF ECONOMIC RESEARCH

1960

OFFICERS

George B. Roberts, *Chairman*
Arthur F. Burns, *President*
Theodore W. Schultz, *Vice-President*
Murray Shields, *Treasurer*
Solomon Fabricant, *Director of Research*
Geoffrey H. Moore, *Associate Director of Research*
William J. Carson, *Executive Director*

DIRECTORS AT LARGE

Wallace J. Campbell, *Nationwide Insurance*
Solomon Fabricant, *New York University*
Crawford H. Greenewalt, *E. I. du Pont de Nemours & Company*
Gabriel Hauge, *Manufacturers Trust Company*
Albert J. Hettinger, Jr., *Lazard Frères and Company*
H. W. Laidler, *League for Industrial Democracy*
Shepard Morgan, *Norfolk, Connecticut*
George B. Roberts, *Larchmont, New York*
Harry Scherman, *Book-of-the-Month Club*
Boris Shishkin, *American Federation of Labor and Congress of Industrial Organizations*
George Soule, *Washington College*
J. Raymond Walsh, *New York City*
Joseph H. Willits, *The Educational Survey, University of Pennsylvania*
Leo Wolman, *Columbia University*
Donald B. Woodward, *Vick Chemical Company*
Theodore O. Yntema, *Ford Motor Company*

DIRECTORS BY UNIVERSITY APPOINTMENT

V. W. Bladen, <i>Toronto</i>	Walter W. Heller, <i>Minnesota</i>
Arthur F. Burns, <i>Columbia</i>	Maurice W. Lee, <i>North Carolina</i>
Melvin G. de Chazeau, <i>Cornell</i>	Lloyd G. Reynolds, <i>Yale</i>
Frank W. Fetter, <i>Northwestern</i>	Theodore W. Schultz, <i>Chicago</i>
Harold M. Groves, <i>Wisconsin</i>	Jacob Viner, <i>Princeton</i>
Gottfried Haberler, <i>Harvard</i>	Willis J. Winn, <i>Pennsylvania</i>

DIRECTORS APPOINTED BY OTHER ORGANIZATIONS

Percival F. Brundage, *American Institute of Certified Public Accountants*
Harold G. Halcrow, *American Farm Economic Association*
Theodore V. Houser, *Committee for Economic Development*
S. H. Ruttenberg, *American Federation of Labor and Congress of Industrial Organizations*
Murray Shields, *American Management Association*
Willard L. Thorp, *American Economic Association*
W. Allen Wallis, *American Statistical Association*
Harold F. Williamson, *Economic History Association*

DIRECTORS EMERITI

Oswald W. Knauth, *Beaufort, South Carolina* N. I. Stone, *New York City*

RESEARCH STAFF

Moses Abramovitz	Milton Friedman	Geoffrey H. Moore
Gary S. Becker	Raymond W. Goldsmith	Roger F. Murray
Gerhard Bry	Millard Hastay	Ralph L. Nelson
Arthur F. Burns	Daniel M. Holland	G. Warren Nutter
Phillip Cagan	Thor Hultgren	Richard T. Selden
Morris A. Copeland	F. Thomas Juster	Lawrence H. Seltzer
Frank G. Dickinson	C. Harry Kahn	Robert P. Shay
James S. Earley	John W. Kendrick	George J. Stigler
Richard A. Easterlin	Simon Kuznets	Leo Wolman
Solomon Fabricant	Ruth P. Mack	Herbert B. Woolley
	Ilse Mintz	

RELATION OF THE DIRECTORS
TO THE WORK AND PUBLICATIONS
OF THE NATIONAL BUREAU OF ECONOMIC RESEARCH

1. The object of the National Bureau of Economic Research is to ascertain and to present to the public important economic facts and their interpretation in a scientific and impartial manner. The Board of Directors is charged with the responsibility of ensuring that the work of the National Bureau is carried on in strict conformity with this object.

2. To this end the Board of Directors shall appoint one or more Directors of Research.

3. The Director or Directors of Research shall submit to the members of the Board, or to its Executive Committee, for their formal adoption, all specific proposals concerning researches to be instituted.

4. No report shall be published until the Director or Directors of Research shall have submitted to the Board a summary drawing attention to the character of the data and their utilization in the report, the nature and treatment of the problems involved, the main conclusions, and such other information as in their opinion would serve to determine the suitability of the report for publication in accordance with the principles of the National Bureau.

5. A copy of any manuscript proposed for publication shall also be submitted to each member of the Board. For each manuscript to be so submitted a special committee shall be appointed by the President, or at his designation by the Executive Director, consisting of three Directors selected as nearly as may be one from each general division of the Board. The names of the special manuscript committee shall be stated to each Director when the summary and report described in paragraph (4) are sent to him. It shall be the duty of each member of the committee to read the manuscript. If each member of the special committee signifies his approval within thirty days, the manuscript may be published. If each member of the special committee has not signified his approval within thirty days of the transmittal of the report and manuscript, the Director of Research shall then notify each member of the Board, requesting approval or disapproval of publication, and thirty additional days shall be granted for this purpose. The manuscript shall then not be published unless at least a majority of the entire Board and a two-thirds majority of those members of the Board who shall have voted on the proposal within the time fixed for the receipt of votes on the publication proposed shall have approved.

6. No manuscript may be published, though approved by each member of the special committee, until forty-five days have elapsed from the transmittal of the summary and report. The interval is allowed for the receipt of any memorandum of dissent or reservation, together with a brief statement of his reasons, that any member may wish to express; and such memorandum of dissent or reservation shall be published with the manuscript if he so desires. Publication does not, however, imply that each member of the Board has read the manuscript, or that either members of the Board in general, or of the special committee, have passed upon its validity in every detail.

7. A copy of this resolution shall, unless otherwise determined by the Board, be printed in each copy of every National Bureau book.

*(Resolution adopted October 25, 1926
and revised February 6, 1933 and February 24, 1941)*

Contents

	PAGE
ACKNOWLEDGMENTS	xi
FOREWORD, BY GEOFFREY H. MOORE	xiii
1. POTENTIAL INFLUENCES ON LABOR COST; AVAILABLE FIGURES	1
2. PRODUCTION AND MAN-HOURS PER UNIT OF PRODUCT	6
Hours per Unit Usually Fall When Production Rises, and Vice Versa	6
Similar Inverse Relation Found in Most Individual Industries with Enough Data	9
Inverse Changes Often Fairly Large	14
Inverse Changes More Frequent at Beginning of Swings in Pro- duction	22
But Inverse Relation Dominant in All Segments of Production Cycles	26
Possible Reasons for the Cyclical Variation	26
Statistical Aggregates Conceal Typical Experience	28
Reliable Measures for All Manufacturing Not Feasible	31
3. PRODUCTION AND LABOR COST PER UNIT OF PRODUCT	33
Rising Hourly Earnings Predominant in All Segments of Recent Cycles	33
Cost Nevertheless Usually Falls When Production Rises, and Vice Versa	34
Inverse Changes Again More Frequent at Beginning of Swings in Production	38
Rising Cost Predominant in Last Half of Expansion and All Segments of Contraction	40
Cost Rose More Often Than Man-Hours per Unit	40
Fewer Industries with Inverse Relation for Cost Than for Hours per Unit	40

Contents

	PAGE
Inverse Relation Obscured in Statistical Aggregates	42
Cost May Have Declined in Earlier Severe Contractions	44
4. CHANGES DURING CYCLES IN BUSINESS AT LARGE	49
Growth of Divergent Tendencies in Production	50
Falling Hours per Unit Predominant in Expansions and, by a Narrower Margin, in Contractions	51
Falling Hours per Unit More Common Around Troughs Than Around Peaks	56
Cost Rises and Falls with Business	58
Rising Cost More Common Around Business Peaks	64
Rise in Cost During Expansion Bigger Than Fall During Con- traction: Rises Cumulate	64
5. CYCLICAL CHANGE: TESTS AND INFERENCES	66
Resemblances Among Successive Cycles	66
The Sequence of Changes During a Cycle	72
Technology Minimizes Rising Cost	73
Impact of Labor Cost: Prices vs. Profit Margins	75
APPENDIX: DERIVATION OF FIGURES	79
Monthly Data	79
Annual Data	85

Tables

	PAGE
1. Manufacturing Industries with Monthly Data and Cycles in Production, 1932-58	3
2. Direction of Change in Man-Hours per Unit of Product	10
3. Indexes, for Individual Industries, of Inverse or Positive Relation Between Hours or Cost per Unit of Product and Production	13
4. Percentage Ratio of Hours per Unit at Trough to Peak of Expansions and Contractions in Production	15
5. Median Ratio of Percentage Change in Hours per Unit to Percentage Change in Production	17
6. Ratio of All Employees in Manufacturing to Wage Earners, or to Production Workers, at Peaks and Troughs in Manufacturing Production	20
7. Hours per Week, Production Workers and All Employees, Iron and Steel Industry, at Peaks and Troughs in Production, 1934-58	21
8. Man-Hours and Labor Cost per Unit of Product, Sequences of Change During Expansions and Contractions of Production	24
9. Division of 1938-44 Cycle in Production of Cement into Stages	25
10. Man-Hours per Unit of Product, Number of Changes from Stage to Stage of Production Cycles, Classified by Direction	26
11. Composite Indexes of Hours per Unit at Turning Points in Composite Production, 1948-58	30
12. Average Hourly Earnings, Number of Changes from Stage to Stage of Production Cycles, Classified by Direction	34

Tables

	PAGE
13. Direction of Change in Labor Cost per Unit of Product	36
14. Ratio of All Manufacturing Wages and Salaries to Production Worker Payroll at Peaks and Troughs in Manufacturing Production	38
15. Labor Cost per Unit of Product, Number of Changes from Stage to Stage of Production Cycles, Classified by Direction	39
16. Contributions of Components to Rises and Falls in Labor Cost During Production Cycles	42
17. Composite Indexes of Labor Cost per Unit of Product at Turning Points in Composite Production, 1948-58	43
18. Turning Points in Composite Production and Composite Labor Cost, 1948-58	44
19. Direction of Changes in Average Hourly Earnings and Labor Cost per Unit of Product, Contractions in Production Ending in 1933 or Earlier	46
20. Changes in Labor Cost During Contractions for Which There Are No Monthly Data	48
21. Production, Number of Changes from Stage to Stage of Business Cycles, Classified by Direction	50
22. Man-Hours per Unit of Product, Changes from Stage to Stage of Business Cycles, Classified by Direction	51
23. Man-Hours per Unit of Product, Number of Changes from Stage to Stage of Business Cycles, Rising and Falling Production Considered Separately	53
24. Man-Hours per Unit of Product, All Manufacturing, Changes Between Peak and Trough Years in Business, 1919-38, 1946-58	55
25. Man-Hours and Labor Cost per Unit of Product, Sequences of Change During Business Expansions and Contractions	57
26. Average Hourly Earnings, Number of Changes from Stage to Stage of Business Cycles, Classified by Direction	59
27. Labor Cost per Unit of Product, Number of Changes from Stage to Stage of Business Cycles, Classified by Direction	59
28. Contributions of Components to Rises and Falls in Labor Cost During Business Cycles	60

Tables

	PAGE
29. Production Phases in Which Cost Declined, Although It Rose in Corresponding Business Phase, Classified According to Changes in Components of Cost	61
30. Labor Cost, All Manufacturing, Changes Between Peak and Trough Years in Business, 1919-38, 1946-58	62
31. Percentage Ratio of Labor Cost at Each Business Peak or Trough to Labor Cost at Preceding Business Trough	65
32. Frequency of Rises in Man-Hours and Labor Cost per Unit of Product in Separate Groups of <i>Production</i> Phases	67
33. Frequency of Rises in Man-Hours and Labor Cost per Unit of Product in Individual <i>Business</i> Cycles	70
A-1. Sources of Monthly Data on Man-Hours, Labor Cost, and Production	80

Charts

	PAGE
1. Aluminum and Copper Mill Shapes: Federal Reserve Index of Production, January 1947–October 1958	7
2. Man-Hours per Unit of Product and the Level of Production	18
3. Aluminum and Copper Mill Shapes, Index of Man-Hours Paid for per Unit of Output, January 1947–September 1958	23
4. Percentage Frequency of Rises in Hours per Unit, Hourly Earnings, and Labor Cost During Successive Segments of Production Cycles	41
5. Percentage Frequency of Rises in Hours per Unit and Labor Cost in Successive Segments of Separate Groups of Production Phases	69
6. Percentage Frequency of Rises in Hours per Unit and Labor Cost in Successive Segments of Individual Business Cycles	71

Acknowledgments

Alice Dimmock participated in all aspects of the earlier stages of the investigation reported in this paper. William I. Greenwald conducted the intricate calculations underlying the data on meat packing. Sophie Sakowitz was primarily responsible for the seasonal adjustments and the selection of turning points. Many machine tabulations supervised by Martha Jones expedited the work. H. Irving Forman drafted the charts.

Among the directors and staff of the National Bureau, Gerhard Bry, Solomon Fabricant, Albert J. Hettinger, Jr., John W. Kendrick, H. W. Laidler, Ruth P. Mack, James F. McRee, Jr., Geoffrey H. Moore, and Theodore O. Yntema read versions of the manuscript and suggested improvements in language and content. Murray Altmann, of the Federal Reserve staff, and L. Fenninger, Jr., of Bethlehem Steel Company, also contributed helpful comments.

THOR HULTGREN