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

Volume Title: Population, Labor Force, and Long Swings in Economic Growth: The American Experience

Volume Author/Editor: Richard A. Easterlin

Volume Publisher: NBER

Volume ISBN: 0-87014-474-X

Volume URL: http://www.nber.org/books/east68-1

Publication Date: 1968

Chapter Title: Front matter, "Population, Labor Force, and Long Swings in Economic Growth: The American Experience"

Chapter Author: Richard A. Easterlin

Chapter URL: http://www.nber.org/chapters/c1115

Chapter pages in book: (p. -17 - 0)

## NATIONAL BUREAU OF ECONOMIC RESEARCH NUMBER 86, GENERAL SERIES

# POPULATION, LABOR FORCE, AND LONG SWINGS IN ECONOMIC GROWTH / THE AMERICAN EXPERIENCE

# Population, Labor Force, and Long Swings in Economic Growth

### THE AMERICAN EXPERIENCE

# RICHARD A'. EASTERLIN

NATIONAL BUREAU OF ECONOMIC RESEARCH New York 1968

Distributed by COLUMBIA UNIVERSITY PRESS New York and London

#### OFFICERS Geoffrey H. Moore, Vice President-Research

Arthur F. Burns, Honorary Chairman Theodore O. Yntema, Chairman

Walter W. Heller, Vice Chairman

John R. Meyer, President

Donald B. Woodward, Treasurer

- Joseph A. Beirne, Communications Workers of America
- Wallace J. Campbell, Foundation for Cooperative Housing
- Erwin D. Canham, Christian Science Monitor
- Robert A. Charpie, Bell & Howell Company
- Solomon Fabricant, New York University
- Frank W. Fetter, Hanover, New Hampshire
- Eugene P. Foley, International Ore and Fertilizer Corporation
- Marion B. Folsom, Eastman Kodak Company
- Eli Goldston, Eastern Gas and Fuel Associates
- Crawford H. Greenewalt, E. I. du Pont de Nemours & Company

#### DIRECTORS BY UNIVERSITY APPOINTMENT

Moses Abramovitz, Stanford Francis M. Boddy, Minnesota Arthur F. Burns, Columbia Lester V. Chandler, Princeton Melvin G. de Chazeau, Cornell Otto Eckstein, Harvard Walter D. Fisher, Northwestern R. A. Gordon, California

- Emilio G. Collado, Committee for Economic Development
- Thomas D. Flynn, American Institute of Certified Public Accountants

- Nathaniel Goldfinger, AFL-CIO Harold G. Halcrow, American Agricultural Economics Association
- Walter E. Hoadley, American Finance Association

- Douglas H. Eldridge, Vice President-Administration
- Hal B. Larv. Director of International Studies

Victor R. Fuchs, Vice President-Research

DIRECTORS AT LARGE

- Gabriel Hauge, Manufacturers Hanover Trust Company
- Walter W. Heller, University of Minnesota
- Vivian W. Henderson, Clark College
- Albert J. Hettinger, Jr., Lazard Frères and Company
- John R. Meyer, Yale University J. Irwin Miller, Cummins Engine Corp.
- Geoffrey H. Moore, NBER
- J. Wilson Newman, Dun & Bradstreet, Inc.
- George B. Roberts, Larchmont, New York
- Robert V. Roosa, Brown Brothers Harriman & Company
- Boris Shishkin, AFL-CIO
- Gus Tyler, ILGWU Donald B. Woodward, A. W. Jones and Co.
- Theodore O. Yntema, Oakland University

Douglas G. Hartle, Toronto

- Robert J. Lampman, Wisconsin Maurice W. Lee, North Carolina Lloyd G. Reynolds, Yale
- Robert M. Solow, Massachusetts Institute of Technology
- Henri Theil, Chicago
- Willis J. Winn, Pennsylvania

DIRECTORS BY APPOINTMENT OF OTHER ORGANIZATIONS

- Douglass C. North, Economic History Association
- Murray Shields, American Management Association
- George Cline Smith, National Association of Business Economists Willard L. Thorp, American Economic
- Association
- W. Allen Wallis, American Statistical Association

Percival F. Brundage Harold M. Groves

DIR	ECT	ORS	EMERITI	

Gottfried Haberler	Shepard Morgan	George Soule
Harry W. Laidler	Harry Scherman	Jacob Viner
Joseph H.	Willits	

#### SENIOR RESEARCH STAFF

Moses Abramovitz
Gary S. Becker
Arthur F. Burns
Phillip Cagan
Alfred H. Conrad
James S. Earley
• •

Solomon Fabricant Milton Friedman Victor R. Fuchs Raymond W. Goldsmith Jack M. Guttentag Daniel M. Holland F. Thomas Juster

C. Harry Kahn John W. Kendrick Irving B. Kravis Hal B. Lary Robert E. Lipsey Jacob Mincer Ilse Mintz

Geoffrey H. Moore Nancy Ruggles **Richard Ruggles** Robert P. Shay George J. Stigler Victor Zarnowitz

#### 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. The President of the National Bureau shall submit to the Board of Directors, or to its Executive Committee, for their formal adoption all specific proposals for research to be instituted.

3. No research report shall be published until the President shall have submitted to each member of the Board the manuscript proposed for publication, and such information as will, in his opinion and in the opinion of the author, serve to determine the suitability of the report for publication in accordance with the principles of the National Bureau. Each manuscript shall contain a summary drawing attention to the nature and treatment of the problem studied, the character of the data and their utilization in the report, and the main conclusions reached.

4. For each manuscript so submitted, a special committee of the Board shall be appointed by majority agreement of the President and Vice Presidents (or by the Executive Committee in case of inability to decide on the part of the President and Vice Presidents), 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 manuscript is submitted to him. It shall be the duty of each member of the special manuscript committee to read the manuscript. If each member of the manuscript committee signifies his approval within thirty days of the transmittal of the manuscript, the report may be published. If at the end of that period any member of the manuscript committee withholds his approval, the President shall then notify each member of the Board, requesting approval or disapproval of publication, and thirty days additional shall be granted for this purpose. The manuscript shall then not be published unless at least a majority of the entire Board who shall have voted on the proposal within the time fixed for the receipt of votes shall have approved.

5. No manuscript may be published, though approved by each member of the special manuscript committee, until forty-five days have elapsed from the transmittal of the report in manuscript form. 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 the special committee have passed on its validity in every detail.

6. Publications of the National Bureau issued for informational purposes concerning the work of the Bureau and its staff, or issued to inform the public of activities of Bureau staff, and volumes issued as a result of various conferences involving the National Bureau shall contain a specific disclaimer noting that such publication has not passed through the normal review procedures required in this resolution. The Executive Committee of the Board is charged with review of all such publications from time to time to ensure that they do not take on the character of formal research reports of the National Bureau, requiring formal Board approval.

7. Unless otherwise determined by the Board or exempted by the terms of paragraph 6, a copy of this resolution shall be printed in each National Bureau publication.

(Resolution adopted October 25, 1926, and revised February 6, 1933, February 24, 1941, and April 20, 1968)

#### CONTENTS

1.1

÷.

Preface	xvii	
1. Introduction and Summary	8	
PART I: NATURE OF THE DEMOGRAPHIC SWINGS AND Their Causal Interrelations with economic Swings		
2. Historical Patterns and Preliminary Causal Analysis	21	
3. The Analytical Model: Recent and Prospective Experience	42	
PART II: FERTILITY ANALYSES		
4. The American Baby Boom in Historical Perspective	77	
5. The Current Fertility Decline and Projected Fertility Changes	111	
PART III: LABOR FORCE ANALYSES		
6. Recent and Projected Labor Force Growth in the Light of		
Longer-Term Experience		
7. Differential Changes in Sex-Age Specific Participation Rates	165	
PART IV: DATA, SOURCES, AND METHODS		
Appendix A 185 Appendix D 235 Appendix F 259		
Appendix B 203 Appendix E 253 Appendix G 267 Appendix C 223		
Bibliography	273	
Index	289	

#### TABLES

1. Percentage Distribution of White Females, 20-44, by Nativity, and of Native White Females, 20-44, by Rural-Urban Residence, 1890-1950	83
2. Observations on Percentage Rate of Change Per Decade in Urban Native White Fertility, Classified by Concurrent Change per Decade in Percentage of Labor Force Unemployed and in Percentage Rate of Change of Total White Males, Aged 20-29, 1885-1958	104
3. Percentage of Nonfarm Families Owning Homes, by Age, 1930–63	118
4. Percentage Distribution of Spending Units by Age, by Net Worth, 1953 and 1962	119
5. Total Money Income of Families with Head Aged 14-24 Compared with That Received by Families with Head Aged 35-44 Five Years Earlier, 1953-62	12 <b>6</b>
6. Net Stock of Tangible Assets per Nonfarm Household, 1929–58	127
7. Income and Employment of Those Aged 14–24 Relative to Those 35–44: Average for Peak to Peak Cycles, 1948–63	134
8. Projected and Expected Number of Births Per Woman for Five-Year Birth Cohorts of Women, Birth Years, 1920–25 to 1955–60	137
9. Labor Force Growth by Component of Change, Actual, 1940-50, and Quinquennially, 1950-65; Projected, Quinquennially, 1965-80	157
10. Illustration of Procedure for Predicting Participation Rate Change by Sex and Age, 1940–50 $$	172
11. Percentage Distribution by Sex and Age of 1950 Domestic Working-Age Population Not in Labor Force	173
12. Labor Force Growth Due to Participation-Rate Change, by Source, 1900-10 to 1960-70	174
A-1. Ten-Year Moving Average of Net Immigration and of Annual Change in Total Population and Gross Construction (Kuznets), 1869–1950	1 <b>87</b>
A-2. Average Growth Rate of Population by Component of Change, Quin- quennially, 1870-1964	189
A-3. Average Growth Rate of Labor Force by Component of Change, 1870- 1965	1 <del>9</del> 0
A-4. Average Growth Rate of Population by Residence, Decennially, 1870-1950	191
A-5. Average Growth Rate of Labor Force by Agricultural-Nonagricultural Sector and Urban-Rural Residence, Decennially, 1870–1950	191

.....

X / TABLES

A-6. Average Growth Rate of Urban Population by Geographic Division, Decennially, 1870–1950	192
A-7. Average Growth Rate of Nonagricultural Labor Force by Geographic Division, Decennially, 1870–1950	193
A-8. Average Growth Rate of Labor Force by Industry, Decennially, 1870– 1950	194
A-9. Average Level of Net Immigration Rate and Unemployment Rate, NBER Reference Cycles, 1890–1907 and 1908–15	195
A-10. Average Rate of Change of Burns' Constant-Price-Building-Permits and Standard-Trend Cycle, Kuznets' Gross Construction in 1929 Prices, and Male Population of Working Age, Decades Ending in 0 and 5, 1870–1950	195
A-11. Average Trend-Adjusted Rate of Change of Selected Basic Commodity Series, Decades Ending in 0 and 5, 1870–1930	19 <b>6</b>
A-12. Average Rate of Change of Total Manufacturing Capital in 1929 Prices, by Selected Major Manufacturing Industries, 1880–1961	197
B-1. Unprocessed Annual Data on Output, Incorporations, Residential Con- struction, Immigration, and Net Capital Imports, 1820–1964	204
B-2. Average Annual Rate of Change in Aggregate Production, Aggregate Construction, Wage Rate, and Hours; and Average Level of Immigration Rate, Nonfarm Household Growth Rate, and Unemployment Rate, NBER Beference Cycles 1830–1964	910
B-3. Average Growth Rate of Total and Nonfarm Households and of Total Households by Component of Change, 1880–1964	216
B-4. Male Population Aged 15-29 and 30-64, Actual and Projected, 1920-85	216
B-5. Percentage of Population Aged 25-29 and 30-64 with 9-12 and 13 or More Years of School Completed, Actual and Projected, 1920-85	217
B-6. Contribution of Population Change to Labor Force and Household Growth, Actual and Projected, 1930-80	217
B-7. Average Growth Rate of Labor Force and Households Due to All Sources and That Due to Population Growth Alone, Actual and Projected, 1930-80	218
C-1. Average Growth Rate of Total White Population, 1870-1959	225
C-2. Level and Rate of Change of Crude Birth Rate of Total White Population, 1855-1959	225
C-3. Level and Rate of Change of Fertility Ratio, 1865–1929, and of General Fertility Rate, 1920–58: Total White Population, by Nativity	226
C-4. White Children Under 5 Years Old by Nativity and Parentage, 1870–1930	226
C-5. White Females 20-44 by Nativity, 1879-1930	228
C-6. Level and Rate of Change of Fertility Ratio by Rural-Urban Residence: Native White Population, 1885–1929; Total White Population, 1925–58	228
C-7. Ratio of Males Aged 25–34 to Females Aged 20–29, and Percentage of Latter Married: Foreign-Born White Population, 1890–1930	229

Ψ.

C-8. Level and Rate of Change of Fertility Ratio; and of Ratio of Males Aged 25–34 to Females 20–29, and of Females Aged 20–34 to Females 20–44: Foreign-Born White Population, 1875–1930	229
C-9. Level and Rate of Change of Fertility Ratio of Rural White Population and Real Gross Farm Income per Engaged, 1885–1929	230
C-10. Level and Rate of Change of Crude Birth Rate of Total Farm Popu- lation and Real Net Farm Income per Head of Farm Population, 1920–58	230
C-11. Level and Rate of Change of Urban Native White Fertility Ratio, Unemployment Rate of Civilian Labor Force, and Rate of Change of Total White Male Population Aged 20-29: 1885-1958	231
C-12. Nativity Components of Change in Total White Fertility Ratio, 1875- 1929	232
C-13. Urban-Rural Components of Change in Native White Fertility Ratio, 1885–1929	233
D-1. Total Fertility Rate and Birth Rate by Age of Mother, 1940-63	237
D-2. Per Capita Disposable Income in 1964 Dollars: Total Population, 1940 and 1947-64	238
D-3. Median Total Money Income in 1959 Dollars: Male Income Recipients, by Age, 1941 and 1947-63	238
D-4. Total Money Income in 1959 Dollars: Families, by Age of Head and Rank within Age Group, 1947–63	239
D-5. Unemployment Rate, by Sex and Age, 1940 and 1947-64	240
D-6. Male Money Income Recipients as a Percentage of Male Population, by Age, 1941 and 1947-63	<b>24</b> 1
D-7. Veterans as a Percentage of Male Population, by Age, 1940, 1945, 1950, and 1955-63	241
D-8. Ever-Married Persons as Percentage of Population, by Sex and Age, 1940, 1947, and 1949-63	242
D-9. Percentage of Male Population in Husband-Wife Households, by Age, 1940, 1947, and 1950-63	243
D-10. Unemployment Rate, Females, by Age, 1940 and 1947-64	244
D-11. Labor Force Participation Rate: Married Females with Husband Present, by Age, 1940 and 1948-64	245
D-12. Labor Force Participation Rate: Married Females with Husband Present, with Children under $\theta$ and No Child 6-17, 1940, 1950, and 1948-64	245
D-13. Labor Force Participation Rate: Married Females with Husband Pres- ent, with Child under 5 or 6, by Age, Selected Years, 1940-63	246
D-14. New High School Graduates Not Enrolled in College: by Sex, Marital Status, and Employment Status in October of Year of High School Graduation; Annually, 1959-63	246
D-15. Birth Rate by Age of Mother, Aged 15–19 Through 25–29, and Summary Fertility Measures: Annually, 1940–63, and Projected Quinquennially, 1965–75	247

The second se

XII / TABLES

D-16. Percentage of Those Aged 25-29 and 30-64 with Specified Years of School Completed: Actual, Decennially, 1920-60; Projected, Quinquennially, 1965-85	248
D-17. Annual Rate of Change of Male Population Aged 14–19, 20–24, and 25–29 Compared with That of Aged 30–64: Actual, 1940–64; Projected, 1964–75	249
E-1. Total Labor Force, 1870–1965	255
E-2. Average Annual Rate of Change in Unemployment Rate and Average Level of Unemployment Rate, Real Wage Rate, and Immigration Rate, NBER Reference Cycles, 1890–1915	256
E-3. Level and Rate of Change of Induced Component of Labor Force Growth and Unemployment Rate: Actual, 1870–1965; Projected, 1965–70	257
F-1. Comparison of Estimates of Average Growth Rate of Total Labor Force, 1870–1950	264
F-2. Comparison of Estimates of Average Growth Rate of Nonagricultural Labor Force, 1870–1950	264
G-1. Labor Force Participation Rate by Sex-Age Group, Decennially, 1900– 60	<b>26</b> 9
G-2. Age Profile of Change in Labor Force Participation Rates by Sex: Average of Decades 1900–40 Compared with That of Decades 1940–60	270
G-3. Predicted and Actual Age Profile of Change in Labor Force Participa- tion Rates, by Sex, Decennially, 1900–60	271
G-4. Predicted and Projected Age Profile of Change in Labor Force Participation Rates, by Sex, 1960–70	272

-----

1

-

-

and the second second

a. +

#### FIGURES

-

" The way Takata

e \*\* 6

ALC: NOTICE

1. Ten-Year Moving Average of Net Immigration and of Annual Change in Total Population and Gross Construction (Kuznets), 1869–1950	22
2. Average Growth Rate of Population by Component of Change, Quinquen- nially, 1870–1955	24
3. Average Growth Rate of Labor Force by Component of Change, Decennially, 1870–1950	24
4. Average Growth Rate of Population by Residence, Decennially, 1870-1950	26
5. Average Growth Rate of Labor Force by Agricultural-Nonagricultural Sector and Urban-Rural Residence, Decennially, 1870–1950	26
6. Average Growth Rate of Urban Population by Geographic Division, Decen- nially, 1870–1950	27
7. Average Growth Rate of Nonagricultural Labor Force by Geographic Division, Decennially, 1870–1950	27
8. Average Growth Rate of Labor Force by Industry, Decennially, 1870-1950	29
9. Average Annual Rate of Change in Aggregate Production, Aggregate Con- struction, and Wage Rate; and Average Level of Immigration Rate and Unemployment Rate, NBER Reference Cycles, 1834–1914	32
10. Average Rate of Change of Burns' Constant-Price-Building-Permits and Standard-Trend Cycle, Kuznets' Gross Construction in 1929 Prices, and Male Population of Working Age, Decades Ending in 0 and 5, 1870–1950	38
11. Average Trend-Adjusted Rate of Change of Selected Basic Commodity Series, Decades Ending in 0 and 5, 1870–1930	39
12. Average Rate of Change of Total Manufacturing Capital in 1929 Prices, by Selected Major Manufacturing Industries, 1880–1961	40
13. Unprocessed Annual Data on Output, Incorporations, Residential Con- struction, Immigration, and Net Capital Imports, 1820–1964	44
14. Average Annual Rate of Change in Aggregate Production, Aggregate Construction, Wage Rate, and Hours; and Average Level of Immigration Rate, Nonfarm Household Growth Rate, and Unemployment Rate, NBER Reference Cycles, 1830–1964	56
15. Average Growth Rate of Population by Component of Change, Quin- quennially, 1870–1964	61
16. Average Growth Rate of Labor Force by Component of Change: De- cennially, 1870–1950; Quinquennially, 1950–65	62

₹<u>;</u>

xiv / figures

17. Average Growth Rate of Total and Nonfarm Households, and of Total Households by Component of Change: Decennially, 1880–1950; Quinquennially, 1950–64	62
18. Male Population Aged 15-29 and 30-64; Actual and Projected, 1920-85	63
19. Percentage of Population Aged 25–29 and 30–64 with 9–12 and 13 or More Years of School Completed; Actual and Projected, 1920–85	64
20. Contribution of Population Change to Labor Force and Household Growth: Actual, Decennially, 1930–50, Quinquennially, 1950–60; and Projected, Quinquennially, 1960–80	68
21. Average Growth Rate of Labor Force and Households Due to All Sources and that Due to Population Growth Alone: Actual, Decennially, 1930–50, Quinquennially, 1950–64; Projected Quinquennially, 1960–80	70
22. Average Growth Rate of Total White Population, 1870–1959	78
23. Level and Rate of Change of Crude Birth Rate of Total White Popula- tion, 1855–1959	80
24. Level and Rate of Change of Fertility Ratio, 1865–1929, and of General Fertility Rate, 1920–58: Total White Population, by Nativity	85
25. Level and Rate of Change of Fertility Ratio by Rural-Urban Residence: Native White Population, 1885–1929; Total White Population, 1925–58	87
26. Ratio of Males Aged 25–34 to Females Aged 20–29, and Percentage of Latter Married: Foreign-Born White Population, 1890–1930	9 <b>3</b>
27. Level and Rate of Change of Fertility Ratio; and of Ratio of Males Aged 25-34 to Females 20-29, and of Females Aged 20-34 to Females 20-44: Foreign-Born White Population, 1875-1930	9 <b>4</b>
28. Level and Rate of Change of Rural White Fertility Ratio (R.F.R.) and Real Gross Farm Income Per Engaged $(Y_w)$ , 1885–1929; and of Farm Birth Rate (F.B.R.) and Real Net Farm Income Per Head $(Y_r)$ , 1920–58	98
29. Level and Rate of Change of Urban Native White Fertility Ratio (U.F.R.), Unemployment Rate of Civilian Labor Force (U), and Rate of Change of Total White Male Population Aged 20-29 (S), 1885-1958	102
30. Total Fertility Rate and Birth Rate, by Age of Mother, 1940–63	113
31. Per Capita Disposable Income in 1964 Dollars: Total Population, 1940 and 1947-64	114
32. Median Total Money Income in 1959 Dollars: Male Income Recipients, by Age, 1941 and 1947–63	114
33. Total Money Income in 1959 Dollars: Families, by Age of Head and Rank Within Age Group, 1947–63	115
34. Unemployment Rate, by Sex and Age, 1940 and 1947–63	116
35. Male Money Income Recipients as a Percentage of Male Population, by Age, 1941 and 1947-63	117
36. Veterans as a Percentage of Male Population, by Age, 1940, 1945, 1950, and 1955-63	117
37. Ever-Married Persons as Percentage of Population, by Sex and Age, 1940, 1947, and 1949-63	120

-

38. Percentage of Male Population in Husband-Wife Households, by Age, 1940, 1947, and 1950–63	121
39. Unemployment and Labor Force Participation Rates of Females, by Mari- tal, Child Dependency, and Age Classes	122
40. New High School Graduates Not Enrolled in College, by Sex, Marital Status, and Employment Status in October of Year of High School Graduation: Annually, 1959-63	123
41. Birth Rate, by Age of Mother Aged 15–19 Through 25–29, and Summary Fertility Measures: Annually, 1940–63, and Projected, Quinquennially, 1965–75	131
42. Percentage of Those Aged 25-29 and 30-64 with Specified Years of School Completed: Actual, Decennially, 1920-60; Projected, Quinquennially, 1965-85	132
43. Annual Rate of Change of Male Population Aged 14–19, 20–24, and 25–29 Compared with That Aged 30–64: Actual, 1940–64; Projected, 1964–75	133
44. Total Labor Force, 1870–1965	143
45. Average Growth Rate of Total Labor Force: Decennially, 1870–1950; Quinquennially, 1950–65	144
46. Average Growth Rate of Labor Force by Component of Change: Decen- nially, 1870-1950; Quinquennially, 1950-65	145
47. Average Annual Rate of Change in Aggregate Production $(\Delta P)$ and Unemployment Rate $(\Delta U)$ ; and Average Level of Real Wage Rate $(W)$ , Unemployment Rate $(U)$ , and Immigration Rate $(I)$ : NBER Reference Cycles, 1890–1915	149
48. Level and Rate of Change of Induced Component of Labor Force Growth $(L_n)$ and Unemployment Rate $(U)$ : Actual, 1870–1965; and Projected Values of Rates of Change, 1965–70	151
49. Labor Force Participation Rate, by Sex-Age Group, Decennially, 1900-60	166
50. Age Profile of Change in Labor Force Participation Rates, by Sex: Average of Decades 1900-40 Compared with That of Decades 1940-60	168
51. Predicted and Actual Age Profile of Change in Labor Force Participation Rates, by Sex, Decennially, 1900–60	176
52. Projected and Predicted Age Profile of Change in Labor Force Participation Rates, by Sex, 1960-70	180
F-1. Average Growth Rate of Total and Nonagricultural Labor Force: Com- parison of Various Estimates, Decennially, 1870–1950	262

σ.

the same the second second

#### PREFACE

4

This study builds directly both on some of the oldest and some of the newest National Bureau work. Along with national income and business cycles, international migration was one of the first subjects to which attention was directed at the Bureau. In 1926, this work yielded Harry Jerome's analysis of the relation between international migration and economic activity during the business cycle, probably still the leading work on the subject. Not long thereafter, the monumental two-volume study, *International Migrations*, compiled by Imre Ferenczi and Walter Willcox, was published. On the subject of long swings, Arthur Burns' *Production Trends in the United States since 1870* (1934), closely linked in conception to Simon Kuznets' Secular Movements in Production and Prices (1930), contributed important insights into what he termed the "trend cycle."

Since World War II, Kuznets has returned to the subject of long swings and, in particular, examined demographic aspects in the NBER Occasional Paper which he wrote in collaboration with Ernest Rubin (1954) and in his book Capital in the American Economy: Its Formation and Financing (1961). In addition to this last, other studies in the series on capital formation and financing devoting special attention to long swings are those by Grebler, Blank, Winnick, and Melville Ulmer. Mention should be made too of G. H. Evans' earlier study, Business Incorporations in the United States, 1800–1943 (1948). In the field of labor force, the present volume owes a major debt to Clarence Long's The Labor Force under Changing Income and Employment (1958).

While Kuznets' work on long swings was only a part of research projects on which he was engaged, in the 1950's Moses Abramovitz initiated a project on long swings as such. NBER publications resulting specifically from this work are *Evidences of Long Swings in Aggregate Construction Since the Civil War* (1964) and Manuel Gottlieb's tech-

#### xviii / preface

nical paper, Estimates of Residential Building, United States, 1840-1939 (1964).

The present study was initiated in late 1958 as part of the Abramovitz project and intended to focus specifically on demographic aspects of the U.S. swings. An initial manuscript, "Long Swings in American Labor Force Growth, 1870–1950," was completed in 1961. The final results of the project are presented in this volume, of which Chapter 2 summarizes the main findings of the earlier manuscript. Chapter 4 has previously appeared as an NBER publication.

Acknowledgments should start first with explicit recognition of the extent to which this study builds on a number of major historical monographs in the field of population and labor force. Without attempting to be exhaustive, mention should be made of contributions by Gertrude Bancroft, Donald Bogue, Carol Brainerd, M. Claire Casey, Daniel Carson, R. O. Carleton, John D. Durand, Alba M. Edwards, Hope T. Eldridge, E. P. Hutchinson, David L. Kaplan, A. J. Jaffe, Stanley Lebergott, Everett S. Lee, Ann R. Miller, Gladys L. Palmer, Dorothy S. Thomas, Warren S. Thompson, Leon E. Truesdell, and P. K. Whelpton. Through careful sifting and testing of the primary data, works such as these have served, among other things, to fill out and clarify the historical record. Without them, the present study would not have been possible.

1

The intellectual debts accumulated in a project of this duration are numerous. The pervasive influence of Simon Kuznets on this study should be apparent to all. A year at Stanford University in 1960–61 provided me with the opportunity to benefit from personal association with Moses Abramovitz as well as from close contact with his work. The ideas in this study owe so much to Abramovitz and Kuznets that I can lay no claim to any uniquely personal contribution. For my indoctrination in demography, my greatest debt is to Dorothy S. Thomas, whose work has and continues to exemplify that field at its best. I am also grateful in this connection to John D. Durand, Hope T. Eldridge, Everett S. Lee, Ann R. Miller, and my other associates at the University of Pennsylvania Population Studies Center who have patiently endured the often naïve and overconfident assertions of an analytical economist. I have benefited too from frequent discussions with my colleagues in the economics department at that university. In particular the support and encouragement of Irving B. Kravis and Sidney Weintraub during the years this study has evolved have been much appreciated. Acknowledgment should also be made of many stimulating exchanges with my associates in the "new" economic history, among them, Kenneth A. H. Buckley, Dorothy S. Brady, Paul A. David, Lance E. Davis, Albert Fishlow, Robert W. Fogel, Robert E. Gallman, Stanley Lebergott, Duncan McDougall, R. Marvin McInnis, Gordon Marker, Douglass C. North, William N. Parker, Nathan Rosenberg, Matthew Simon, Eugene Smolensky, Peter Temin, William G. Whitney, and Maurice Wilkinson. This was especially facilitated by the annual Purdue University seminars, where some of the ideas in this book were first presented.

For helpful observations relating to particular chapters, I am grateful to Omer Galle (Chapter 2); Arthur I. Bloomfield, Irwin Friend, F. Thomas Juster, Robert E. Lipsey, Marc L. Nerlove, and Almarin Phillips (Chapter 3); Arthur A. Campbell, Joseph S. Davis, and W. Lee Hansen (Chapter 4); Campbell, Ronald Freedman, and Alice M. Rivlin (Chapter 5); Robert Summers and Thomas W. Merrick (Chapter 6); and Dave M. O'Neill (Chapter 7).

At the National Bureau, Gary S. Becker, Solomon Fabricant, Jacob Mincer, Geoffrey H. Moore, and Victor R. Fuchs have often made helpful comments. Becker, Mincer, and Moses Abramovitz, who acted as the staff reading committee, reviewed the final manuscript and their suggestions led to a number of improvements. Abramovitz' lengthy and detailed comments on several occasions during the course of this project call for special thanks. The NBER Directors' review committee consisted of Wallace J. Campbell, Douglass C. North, and T. W. Schultz; North's frank views were especially helpful.

During 1963-64, support for this study was provided by a contract with the Office of Manpower Policy, Evaluation and Research, U.S. Department of Labor, under the authority of Title I of the Manpower Development and Training Act of 1962, as amended. Researchers undertaking such projects under government sponsorship are encouraged to express freely their professional judgment. Therefore, points of view or opinions stated in this document do not necessarily represent the official position or policy of the Department of Labor. Among the benefits arising from this grant were the salient comments provided by Joseph S. Zeisel, Gertrude Bancroft, and Sophia Cooper, as well as

#### XX / PREFACE

special tabulations of data. Thanks are also due to Conrad Taeuber, Henry Shryock, and others at the Bureau of the Census, as well as individuals at other official agencies who generously responded to various requests. I am also grateful to the University of Pennsylvania for a sabbatical leave in the fall of 1964, which helped in completion of the study, as well as for the tolerant and encouraging attitude of the administration throughout the course of the project. In 1965–66, when I held a Ford Foundation Faculty Fellowship, part of the time was devoted to this volume. National Science Foundation grant GS-942 contributed in part to the support of this study between September 1, 1965 and August 31, 1967.

In the execution of this study, I have been singularly blessed with assistants of unusual ability and dedication. Most of all I am indebted to Chantal de Molliens Dubrin, who has loyally suffered through the many false turns this study took and has continued to turn out work of the highest quality. At an earlier stage, Marcel Tenenbaum and Radivoj Ristic made extended contributions of exceptionally high quality. Among others who participated at one point or another are Henry Gemery, John Hagner, S. R. Lewis, Jr., Soren T. Neilsen, Adrian Throop, and Regina Weiss. James F. McRee, Jr., Gerald Paul, and Joan R. Tron edited the manuscript, and despite the obstacles I had created did much toward making it a cohesive whole. I am grateful to Robert Dickler for preparing the index. For the charts, which are the heart of the study, I am grateful to H. Irving Forman.

RICHARD A. EASTERLIN