HANDBOOK OF DEVELOPMENT ECONOMICS

VOLUME I

Edited by

HOLLIS CHENERY
Harvard University

and

T.N. SRINIVASAN
Yale University

NORTH HOLLAND
AMSTERDAM • NEW YORK • OXFORD • TOKYO
CONTENTS OF THE HANDBOOK

VOLUME I

PART 1: ECONOMIC DEVELOPMENT – CONCEPTS AND APPROACHES

Introduction
T.N. SRINIVASAN

Chapter 1
The Concept of Development
AMARTYA SEN

Chapter 2
The Roots of Development Theory
W. ARTHUR LEWIS

Chapter 3
Alternative Approaches to Development Economics
PRANAB BARDHAN

Chapter 4
Analytics of Development: Dualism
GUSTAV RANIS

Chapter 5
Economic Organization, Information, and Development
JOSEPH E. STIGLITZ

Chapter 6
Long-run Income Distribution and Growth
LANCE TAYLOR and PERSIO ARIDA

PART 2: STRUCTURAL TRANSFORMATION

Introduction
HOLLIS CHENERY

Chapter 7
Patterns of Structural Change
MOSHE SYRQUIN
Chapter 8
The Agricultural Transformation
C. PETER TIMMER

Chapter 9
Industrialization and Trade
HOWARD PACK

Chapter 10
Saving and Development
MARK GERSOVITZ

Chapter 11
Migration and Urbanization
JEFFREY G. WILLIAMSON

PART 3: HUMAN RESOURCES AND LABOR MARKETS

Introduction
T.N. SRINIVASAN

Chapter 12
Economic Approaches to Population Growth
NANCY BIRDSALL

Chapter 13
Education Investments and Returns
T. PAUL SCHULTZ

Chapter 14
Health and Nutrition
JERE R. BEHRMAN and ANIL B. DEOLALIKAR

Chapter 15
Labor Markets in Low-Income Countries
MARK R. ROSENZWEIG

Chapter 16
Credit Markets and Interlinked Transactions
CLIVE BELL

VOLUME II

PART 4: PLANNING AND RESOURCE ALLOCATION

Introduction
HOLLIS CHENERY
Contents of the Handbook

Chapter 17
Short-Run Macroeconomics
PERSIO ARIDA and LANCE TAYLOR

Chapter 18
Multisectoral Models
SHERMAN ROBINSON

Chapter 19
Income Distribution and Development
IRMA ADELMAN and SHERMAN ROBINSON

Chapter 20
Technological Change
LARRY WESTPHAL

Chapter 21
Taxation for Developing Countries
NICHOLAS STERN and EHTISHAM AHMAD

Chapter 22
Project Evaluation in Theory and Practice
LYN SQUIRE

PART 5: INTERNATIONAL ASPECTS

Introduction
T.N. SRINIVASAN

Chapter 23
International Cooperation
PAUL STREETEN

Chapter 24
Trade and Development: Theoretical Issues and Policy Implications
CHRISTOPHER BLISS

Chapter 25
Alternative Perspectives on Trade and Development
DAVID EVANS

Chapter 26
Foreign Public Capital Flows
JONATHAN EATON

Chapter 27
Foreign Private Capital Flows
RUDIGER DORNBUSCH
Chapter 28
Transnational Corporations and Direct Foreign Investment
GERALD HELLEINER

Chapter 29
Disequilibrium and Structural Adjustment
SEBASTIAN EDWARDS and SWEDER VAN WIJNBERGEN

PART 6: COUNTRY EXPERIENCE WITH DEVELOPMENT

Introduction
HOLLIS CHENERY

Chapter 30
The Experience of Primary Exporting Countries
STEPHEN R. LEWIS

Chapter 31
Import Substitution as a Development Strategy
HENRY BRUTON

Chapter 32
Outward Orientation
BELA BALASSA

Chapter 33
Large Countries: The Influence of Size
DWIGHT H. PERKINS and MOSHE SYRQUIN
CONTENTS OF VOLUME I

Introduction to the Series v
Contents of the Handbook vii
Preface to the Handbook xii

PART 1: ECONOMIC DEVELOPMENT – CONCEPTS AND APPROACHES

<table>
<thead>
<tr>
<th>Chapter 1</th>
<th>The Concept of Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMARTYA SEN</td>
<td></td>
</tr>
<tr>
<td>1. The Background</td>
<td>10</td>
</tr>
<tr>
<td>2. Production, growth, and development</td>
<td>12</td>
</tr>
<tr>
<td>3. Characteristics, functionings, and living</td>
<td>15</td>
</tr>
<tr>
<td>4. Freedom and capability</td>
<td>16</td>
</tr>
<tr>
<td>5. Weights and rankings</td>
<td>18</td>
</tr>
<tr>
<td>6. Values, instruments, and objects</td>
<td>20</td>
</tr>
<tr>
<td>7. Conclusion</td>
<td>23</td>
</tr>
<tr>
<td>References</td>
<td>24</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chapter 2</th>
<th>The Roots of Development Theory</th>
</tr>
</thead>
<tbody>
<tr>
<td>W. ARTHUR LEWIS</td>
<td></td>
</tr>
<tr>
<td>1. Introduction</td>
<td>28</td>
</tr>
<tr>
<td>2. Sectoral imbalance</td>
<td>28</td>
</tr>
<tr>
<td>3. Overall balance</td>
<td>31</td>
</tr>
<tr>
<td>4. Organization</td>
<td>34</td>
</tr>
<tr>
<td>5. Conclusion</td>
<td>36</td>
</tr>
<tr>
<td>References</td>
<td>37</td>
</tr>
</tbody>
</table>
Chapter 3
Alternative Approaches to Development Economics
PRANAB BARDHAN

1. Introduction 40
2. Theory of the household 40
3. Institutions and resource allocation 45
4. Income distribution and growth 51
5. Trade and development 57
6. Economic policy and the state 63
7. Concluding remarks 66
References 68

Chapter 4
Analytics of Development: Dualism
GUSTAV RANIS

1. Introduction 74
2. Dualism in the history of economic thought 75
3. The modern analytics of closed dualism 76
4. Dualism in the open economy 86
References 91

Chapter 5
Economic Organization, Information, and Development
JOSEPH E. STIGLITZ

1. Introduction 94
2. Basic tenets and objectives of analysis 96
2.1. Stylized facts 96
2.2. Alternative approaches 96
3. The theory of rural organization 105
3.1. The organization of the family 105
3.2. The landlord-tenant relationship: The sharecropping puzzle 115
3.3. Unemployment in the rural sector 125
3.4. The rural sector as a whole: The interlinkage of markets 133
4. The urban sector 134
5. Market equilibrium 136
6. Government pricing policies, wage subsidies, and cost–benefit analysis 140
7. The development process 142
7.1. Factor supplies 142
7.2. Technical change and entrepreneurship 147
7.3 Development strategies 150
Chapter 6
Long-Run Income Distribution and Growth
LANCE TAYLOR and PERSIO ARIDA

1. Introduction 162
2. The heirs of Schumpeter 163
3. Demand-driven models 165
4. Resource limitations and reproduction 169
5. Shades of Marx 174
6. The neoclassical resurgence – trade 178
7. Structuralists versus monetarists 184
8. Patterns of growth 187
9. Conclusions 189
References 190

PART 2: STRUCTURAL TRANSFORMATION

Introduction
HOLLIS CHENERY 197

Chapter 7
Patterns of Structural Change
MOSHE SYRQUIN

0. Introduction 205
1. The study of structural change 206
   1.1. Structural change in economic history 209
   1.2. Structural change in development economics 211
   1.3. The need for a typology 214
2. Empirical research on the structural transformation 216
   2.1. Bases for comparative analysis 216
   2.2. A unique path of development? 217
   2.3. The methodology of comparative analysis 218
   2.4. Time-series vs. cross-section studies 221
3. Patterns of growth and accumulation 223
   3.1. Growth patterns 223
   3.2. Accumulation 225
### Contents of Volume 1

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.</td>
<td>Changes in sector proportions</td>
<td>228</td>
</tr>
<tr>
<td>4.1.</td>
<td>The accounting framework</td>
<td>230</td>
</tr>
<tr>
<td>4.2.</td>
<td>Final demand</td>
<td>231</td>
</tr>
<tr>
<td>4.3.</td>
<td>Intermediate demand</td>
<td>231</td>
</tr>
<tr>
<td>4.4.</td>
<td>Trade</td>
<td>232</td>
</tr>
<tr>
<td>4.5.</td>
<td>Structure of production: Broad sectors</td>
<td>235</td>
</tr>
<tr>
<td>4.6.</td>
<td>Post-war patterns</td>
<td>239</td>
</tr>
<tr>
<td>4.7.</td>
<td>Manufacturing: Disaggregated results</td>
<td>242</td>
</tr>
<tr>
<td>5.</td>
<td>Structure and growth</td>
<td>243</td>
</tr>
<tr>
<td>5.1.</td>
<td>Sectoral contributions to growth</td>
<td>244</td>
</tr>
<tr>
<td>5.2.</td>
<td>Typology of development patterns</td>
<td>248</td>
</tr>
<tr>
<td>6.</td>
<td>Accounting for the transformation</td>
<td>250</td>
</tr>
<tr>
<td>6.1.</td>
<td>Growth accounting: Demand side decomposition</td>
<td>250</td>
</tr>
<tr>
<td>6.2.</td>
<td>Growth accounting: Supply side</td>
<td>254</td>
</tr>
<tr>
<td>6.3.</td>
<td>Resource shifts and productivity growth</td>
<td>255</td>
</tr>
<tr>
<td>7.</td>
<td>Relative prices and exchange rate conversions</td>
<td>258</td>
</tr>
<tr>
<td>7.1.</td>
<td>Relative prices</td>
<td>259</td>
</tr>
<tr>
<td>7.2.</td>
<td>Exchange-rate conversions</td>
<td>262</td>
</tr>
<tr>
<td>8.</td>
<td>Approaches to policy</td>
<td>265</td>
</tr>
<tr>
<td></td>
<td>References</td>
<td>268</td>
</tr>
</tbody>
</table>

### Chapter 8

The Agricultural Transformation

C. PETER TIMMER

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Introduction</td>
<td>276</td>
</tr>
<tr>
<td>2.</td>
<td>The process of agricultural transformation</td>
<td>279</td>
</tr>
<tr>
<td>2.1.</td>
<td>Evolving stages</td>
<td>280</td>
</tr>
<tr>
<td>2.2.</td>
<td>Agriculture and economic development</td>
<td>283</td>
</tr>
<tr>
<td>2.3.</td>
<td>The role of the agricultural sector</td>
<td>288</td>
</tr>
<tr>
<td>3.</td>
<td>Why agriculture is different</td>
<td>291</td>
</tr>
<tr>
<td>3.1.</td>
<td>Decision-making in agriculture</td>
<td>292</td>
</tr>
<tr>
<td>3.2.</td>
<td>Characteristics of agricultural production functions</td>
<td>294</td>
</tr>
<tr>
<td>3.3.</td>
<td>The farm household as both producer and consumer</td>
<td>299</td>
</tr>
<tr>
<td>3.4.</td>
<td>What difference does the difference make?</td>
<td>300</td>
</tr>
<tr>
<td>4.</td>
<td>Transforming agriculture</td>
<td>302</td>
</tr>
<tr>
<td>4.1.</td>
<td>The sources and dynamics of technical change</td>
<td>302</td>
</tr>
<tr>
<td>4.2.</td>
<td>Unresolved issues</td>
<td>313</td>
</tr>
<tr>
<td>5.</td>
<td>Agricultural development strategy</td>
<td>321</td>
</tr>
<tr>
<td>5.1.</td>
<td>Policies for “getting agriculture moving”</td>
<td>321</td>
</tr>
<tr>
<td>5.2.</td>
<td>Alternative strategies for maintaining the transformation process</td>
<td>323</td>
</tr>
<tr>
<td>5.3.</td>
<td>Agricultural policy and structural change</td>
<td>327</td>
</tr>
<tr>
<td></td>
<td>References</td>
<td>328</td>
</tr>
</tbody>
</table>
Chapter 9
Industrialization and Trade
HOWARD PACK

1. Introduction 334
2. A retrospective 336
   2.1. The compression of the industrialization process 336
   2.2. Initial conditions 337
   2.3. The elasticity of factor supplies 338
   2.4. The role of rationality 341
   2.5. The role of international trade 341
3. The evolving structure of production 342
   3.1. Normal patterns 342
   3.2. The impact of policy intervention 344
   3.3. Import substitution, exports, and the patterns of growth 344
4. The impact of trade on industrial performance 346
   4.1. Industrial productivity—a key variable 346
   4.2. The costs of protection 347
   4.3. Trade orientation and the growth of total factor productivity 348
   4.4. The empirical evidence 352
   4.5. Cross-country models 356
   4.6. The large country puzzle 357
5. Micro studies of productivity 358
   5.1. Early intercountry comparisons of productivity levels 358
   5.2. The Hirschman hypothesis 359
   5.3. Firm-level productivity studies in the less developed countries 360
6. Employment creation in the manufacturing sector 365
   6.1. The choice of technology 366
   6.2. Factor market distortions and information costs 369
   6.3. The aggregate gains from improved technology choice 370
7. Conclusions 371

References 372

Chapter 10
Saving and Development
MARK GERSOVITZ

1. Introduction 382
2. Personal savings 383
   2.1. A simple model of individual saving 384
   2.2. Evidence on the simple model 385
   2.3. Uncertainty and saving 390
   2.4. Borrowing constraints 392
   2.5. Education and asset choice 394
2.6. Health, nutrition and savings  396
2.7. Bequests and savings  400
2.8. The family and savings  401
3. Savings at the national level  403
 3.1. Aggregation over cohorts  404
 3.2. Income distribution and aggregate savings  407
 3.3. Corporate savings  411
 3.4. The role of government  412
 3.5. Evidence at the aggregate level  413
4. Conclusions  418
References  419

Chapter 11
Migration and Urbanization
JEFFREY G. WILLIAMSON  Ï  425

The problem  426
2. The urban transition  427
 2.1. Quantifying the urban transition  427
 2.2. Migrant selectivity bias  430
 2.3. Selectivity bias, the brain drain, and remittances  431
 2.4. City growth, migration, and labor absorption  433
3. Disequilibrating labor market shocks and equilibrating migrant responses  433
 3.1. Disequilibrium and wage gaps  433
 3.2. Are migrants rational?  435
 3.3. Are there too many city immigrants?  437
4. What does “overurbanization” mean?  439
 4.1. Push, pull, and the engines of city growth  439
 4.2. The urban bias  441
5. How do urban labor markets work?  442
 5.1. The evolution of conventional wisdom  442
 5.2. The Todaro model  443
 5.3. Critique: How do urban labor markets really work?  445
 5.4. Some evidence  446
6. Migration and city growth in general equilibrium: What are the driving forces?  449
 6.1. What drives Third World migration and city growth?  449
 6.2. Modeling migration and city growth  453
 6.3. Understanding the past and projecting the future  455
7. Where do we go from here?  459
References  461
PART 3: HUMAN RESOURCES AND LABOR MARKETS

Introduction
T.N. SRINIVASAN 469

Chapter 12
Economic Approaches to Population Growth
NANCY BIRDSALL 477
1. Introduction and overview 478
2. Recent demographic change in the developing world 479
3. Macroeconomic analyses of the economic consequences of population growth 483
   3.1. Malthus and successor pessimists 486
   3.2. The optimists 490
   3.3. The revisionists 493
4. Microeconomic foundations: The determinants of fertility 501
   4.1. Economic models of fertility behavior 503
   4.2. Fertility models: Differences, conceptual limitations 509
   4.3. Empirical studies of fertility behavior 512
   4.4. Endogenous fertility, optimal population size, and social welfare 522
5. The welfare economics of public policies to reduce fertility 523
   5.1. Externalities 523
   5.2. Fertility control and market failure 525
   5.3. Specific policies 526
6. Summary and conclusions 529
References 535

Chapter 13
Education Investments and Returns
T. PAUL SCHULTZ 543
1. Introduction and preview 544
   1.1. An overview 545
   1.2. Problems: Conceptual and empirical 547
2. National educational systems: Interpretation of aggregate patterns 550
   2.1. World trends 551
   2.2. Adjustment of the educational system to demand and supply 557
   2.3. A model of the educational system 562
   2.4. An empirical decomposition of educational expenditures 564
   2.5. Estimates of school expenditure equations 568
   2.6. Sex differences in school enrollment rates 571
   2.7. Regional patterns in residuals 573
   2.8. Cross-sectional findings and time-series forecasts 575

References
3. Alternative models of education and earnings, data, and policy implications 577
4. Rates of return to schooling in market activities 585
   4.1. Student ability, parent background, and school quality 587
   4.2. Labor supply and unemployment 591
   4.3. Occupational choice 593
   4.4. The education and productivity of farmers 597
   4.5. Migration 599
   4.6. Male–female comparisons of returns 602
   4.7. Interactions with educational returns 605
   4.8. Efficiency and equity 606
5. Nonmarket production and schooling 607
6. Policy 610
7. Conclusions 615
Appendix 618
References 621

Chapter 14
Health and Nutrition
JERE R. BEHRMAN and ANIL B. DEOLALIKAR 631
1. Introduction 633
2. Theoretical framework 637
   2.1. Micro considerations: Household production functions and reduced-form demands for health and nutrients 637
   2.2. Supply considerations 649
   2.3. Macro or aggregate considerations 649
3. Measurement and estimation problems in health and nutrition relations 650
   3.1. Measurement of health status 650
   3.2. Measurement of nutrient intakes and nutritional status 653
   3.3. Measurement of non-nutrient health-related inputs 656
   3.4. Measurement of prices, health-related inputs, and assets 657
   3.5. Estimation problems 658
4. Empirical studies of determinants of health and nutrition in developing countries 660
   4.1. Determinants of health 660
   4.2. Determinants of nutrients 674
5. Empirical studies of the impact of health and nutrition in developing countries 683
   5.1. Impact on labor productivity 683
   5.2. Impact on schooling productivity 688
Contents of Volume I

5.3. Impact of female nutrition on fertility 689
5.4. Impact of infant mortality on fertility 690

6. Empirical studies on supply considerations and related policies 692
   6.1. Food subsidies 692
   6.2. Other health goods and services subsidies 696
   6.3. Impact of macro adjustment policies on health and nutrition 697

7. Summary and conclusions 698
   7.1. Summary of available studies 698
   7.2. Directions for future research 702

References 704

Chapter 15
Labor Markets in Low-Income Countries
MARK R. ROENZWEIG 713

1. Introduction 714
2. Employment and wage determination in rural labor markets 715
   2.1. Surplus labor, disguised employment and unemployment 715
   2.2. The family enterprise model and agricultural dualism 728
3. Rural labor contracts: Risk, information and incentives problems 733
   3.1. Casual and permanent laborers: Spot and future markets for labor 736
   3.2. Tenancy contracts 738
4. Geographic mobility 743
   4.1. The basic human capital model of migration 744
   4.2. Information and capital market constraints on mobility 745
   4.3. Two-sector unemployment equilibrium models 746
   4.4. Risk, remittances and family behavior 751
   4.5. Heterogeneity and selective migration 753
5. Urban labor markets 754
   5.1. Diversity and unemployment 754
   5.2. Urban dualism and dual labor markets 756
6. Conclusion 757
References 759

Chapter 16
Credit Markets and Interlinked Transactions
CLIVE BELL 763

1. Introduction 764
2. Credit markets 766
   2.1. The credit contract 769
   2.2. Innovation and the rate of interest 782
   2.3. Public policy 783
   2.4. Some evidence 791
### Contents of Volume I

3. Interlinked transactions  
3.1. The causes of interlinking  797  
3.2. The interlinking of tenancy with credit: The principal–agent approach  798  
3.3. An alternative to contract-taking equilibrium: The Nash bargaining solution  803  
3.4. Interlinking and innovation  810  
3.5. Welfare and income distribution  813  
3.6. Policy reforms  816  

4. Concluding remarks  
References  823

Index  826  

References  828  

Index  831