CAPITAL IN THE TWENTY-FIRST CENTURY

Thomas Piketty

Translated by Arthur Goldhammer

The Belknap Press of Harvard University Press
CAMBRIDGE, MASSACHUSETTS
LONDON, ENGLAND
2014


Contents

Acknowledgments · vii

Introduction · 1

Part One: Income and Capital
1. Income and Output · 39
2. Growth: Illusions and Realities · 72

Part Two: The Dynamics of the Capital/Income Ratio
3. The Metamorphoses of Capital · 113
4. From Old Europe to the New World · 140
5. The Capital/Income Ratio over the Long Run · 164
6. The Capital-Labor Split in the Twenty-First Century · 199

Part Three: The Structure of Inequality
7. Inequality and Concentration: Preliminary Bearings · 237
8. Two Worlds · 271
9. Inequality of Labor Income · 304
10. Inequality of Capital Ownership · 336
11. Merit and Inheritance in the Long Run · 377
12. Global Inequality of Wealth in the Twenty-First Century · 430

Part Four: Regulating Capital in the Twenty-First Century
13. A Social State for the Twenty-First Century · 471
14. Rethinking the Progressive Income Tax · 493
15. A Global Tax on Capital · 515
16. The Question of the Public Debt · 540

Conclusion · 571

Notes · 579
Contents in Detail · 657
List of Tables and Illustrations · 665
Index · 671
Contents in Detail

Acknowledgments vii

Introduction 1
A Debate without Data? 2
Malthus, Young, and the French Revolution 3
Ricardo: The Principle of Scarcity 5
Marx: The Principle of Infinite Accumulation 7
From Marx to Kuznets, or Apocalypse to Fairy Tale 11
The Kuznets Curve: Good News in the Midst of the Cold War 13
Putting the Distributional Question Back at the Heart of Economic Analysis 15
The Sources Used in This Book 16
The Major Results of This Study 20
Forces of Convergence, Forces of Divergence 22
The Fundamental Force for Divergence: \( r > g \) 25
The Geographical and Historical Boundaries of This Study 27
The Theoretical and Conceptual Framework 30
Outline of the Book 33

Part One: Income and Capital . 37

1. Income and Output 39
The Capital-Labor Split in the Long Run: Not So Stable 41
The Idea of National Income 43
What Is Capital? 45
Capital and Wealth 47
The Capital/Income Ratio 50
The First Fundamental Law of Capitalism: \( \alpha = r \times \beta \) 52
National Accounts: An Evolving Social Construct 55
The Global Distribution of Production 59
From Continental Blocs to Regional Blocs 61
Global Inequality: From 150 Euros per Month to 3,000 Euros per Month 64

657
The Global Distribution of Income Is More Unequal Than the Distribution of Output 67
What Forces Favor Convergence? 69

2. Growth: Illusions and Realities 72
Growth over the Very Long Run 73
The Law of Cumulative Growth 74
The Stages of Demographic Growth 77
Negative Demographic Growth 80
Growth as a Factor for Equalization 83
The Stages of Economic Growth 86
What Does a Tenfold Increase in Purchasing Power Mean? 87
Growth: A Diversification of Lifestyles 90
The End of Growth? 93
An Annual Growth of 1 Percent Implies Major Social Change 95
The Posterity of the Postwar Period: Entangled Transatlantic Destinies 96
The Double Bell Curve of Global Growth 99
The Question of Inflation 102
The Great Monetary Stability of the Eighteenth and Nineteenth Centuries 103
The Meaning of Money in Literary Classics 105
The Loss of Monetary Bearings in the Twentieth Century 106

Part Two: The Dynamics of the Capital/Income Ratio 111

3. The Metamorphoses of Capital 113
The Nature of Wealth: From Literature to Reality 113
The Metamorphoses of Capital in Britain and France 116
The Rise and Fall of Foreign Capital 120
Income and Wealth: Some Orders of Magnitude 122
Public Wealth, Private Wealth 123
Public Wealth in Historical Perspective 126
Great Britain: Public Debt and the Reinforcement of Private Capital 129
Who Profits from Public Debt? 131
The Ups and Downs of Ricardian Equivalence 134

658
## CONTENTS IN DETAIL

France: A Capitalism without Capitalists in the Postwar Period 135

4. *From Old Europe to the New World* 140
   - Germany: Rhenish Capitalism and Social Ownership 140
   - Shocks to Capital in the Twentieth Century 146
   - Capital in America: More Stable Than in Europe 150
   - The New World and Foreign Capital 155
   - Canada: Long Owned by the Crown 157
   - New World and Old World: The Importance of Slavery 158
   - Slave Capital and Human Capital 162

5. *The Capital/Income Ratio over the Long Run* 164
   - The Second Fundamental Law of Capitalism: $\beta = s/g$ 166
   - A Long-Term Law 168
   - Capital's Comeback in Rich Countries since the 1970s 170
   - Beyond Bubbles: Low Growth, High Saving 173
   - The Two Components of Private Saving 176
   - Durable Goods and Valuables 179
   - Private Capital Expressed in Years of Disposable Income 180
   - The Question of Foundations and Other Holders of Capital 182
   - The Privatization of Wealth in the Rich Countries 183
   - The Historic Rebound of Asset Prices 187
   - National Capital and Net Foreign Assets in the Rich Countries 191
   - What Will the Capital/Income Ratio Be in the Twenty-First Century? 195
   - The Mystery of Land Values 196

   - From the Capital/Income Ratio to the Capital-Labor Split 199
   - Flows: More Difficult to Estimate Than Stocks 203
   - The Notion of the Pure Return on Capital 205
   - The Return on Capital in Historical Perspective 206
   - The Return on Capital in the Early Twenty-First Century 208
   - Real and Nominal Assets 209
   - What Is Capital Used For? 212
   - The Notion of Marginal Productivity of Capital 213

---

---

---
CONTENTS IN DETAIL

Too Much Capital Kills the Return on Capital 215
Capital-Labor Substitution in the Twenty-First Century: An Elasticity Greater Than One 220
Traditional Agricultural Societies: An Elasticity Less Than One 222
Is Human Capital Illusory? 223
Medium-Term Changes in the Capital-Labor Split 224
Back to Marx and the Falling Rate of Profit 227
Beyond the “Two Cambridges” 230
Capital’s Comeback in a Low-Growth Regime 232
The Caprices of Technology 234

Part Three: The Structure of Inequality . 235

7. Inequality and Concentration: Preliminary Bearings 237
Vautrin’s Lesson 238
The Key Question: Work or Inheritance? 240
Inequalities with Respect to Labor and Capital 242
Capital: Always More Unequally Distributed Than Labor 244
Inequalities and Concentration: Some Orders of Magnitude 246
Lower, Middle, and Upper Classes 250
Class Struggle or Centile Struggle? 252
Inequalities with Respect to Labor: Moderate Inequality? 255
Inequalities with Respect to Capital: Extreme Inequality 257
A Major Innovation: The Patrimonial Middle Class 260
Inequality of Total Income: Two Worlds 263
Problems of Synthetic Indices 266
The Chaste Veil of Official Publications 267
Back to “Social Tables” and Political Arithmetic 269

8. Two Worlds 271
A Simple Case: The Reduction of Inequality in France in the Twentieth Century 271
The History of Inequality: A Chaotic Political History 274
From a “Society of Rentiers” to a “Society of Managers” 276

660
## CONTENTS IN DETAIL

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Different Worlds of the Top Decile</td>
<td>278</td>
</tr>
<tr>
<td>The Limits of Income Tax Returns</td>
<td>281</td>
</tr>
<tr>
<td>The Chaos of the Interwar Years</td>
<td>284</td>
</tr>
<tr>
<td>The Clash of Temporalities</td>
<td>286</td>
</tr>
<tr>
<td>The Increase of Inequality in France since the 1980s</td>
<td>290</td>
</tr>
<tr>
<td>A More Complex Case: The Transformation of Inequality in the United States</td>
<td>291</td>
</tr>
<tr>
<td>The Explosion of US Inequality after 1980</td>
<td>294</td>
</tr>
<tr>
<td>Did the Increase of Inequality Cause the Financial Crisis?</td>
<td>297</td>
</tr>
<tr>
<td>The Rise of Supersalaries</td>
<td>298</td>
</tr>
<tr>
<td>Cohabitation in the Upper Centile</td>
<td>300</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>9. Inequality of Labor Income</td>
<td>304</td>
</tr>
<tr>
<td>Wage Inequality: A Race between Education and Technology?</td>
<td>304</td>
</tr>
<tr>
<td>The Limits of the Theoretical Model: The Role of Institutions</td>
<td>307</td>
</tr>
<tr>
<td>Wage Scales and the Minimum Wage</td>
<td>310</td>
</tr>
<tr>
<td>How to Explain the Explosion of Inequality in the United States?</td>
<td>314</td>
</tr>
<tr>
<td>The Rise of the Supermanager: An Anglo-Saxon Phenomenon</td>
<td>315</td>
</tr>
<tr>
<td>Europe: More Inegalitarian Than the New World in 1900–1910</td>
<td>321</td>
</tr>
<tr>
<td>Inequalities in Emerging Economies: Lower Than in the United States?</td>
<td>326</td>
</tr>
<tr>
<td>The Illusion of Marginal Productivity</td>
<td>330</td>
</tr>
<tr>
<td>The Takeoff of the Supermanagers: A Powerful Force for Divergence</td>
<td>333</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>10. Inequality of Capital Ownership</td>
<td>336</td>
</tr>
<tr>
<td>Hyperconcentrated Wealth: Europe and America</td>
<td>336</td>
</tr>
<tr>
<td>France: An Observatory of Private Wealth</td>
<td>337</td>
</tr>
<tr>
<td>The Metamorphoses of a Patrimonial Society</td>
<td>339</td>
</tr>
<tr>
<td>Inequality of Capital in Belle Époque Europe</td>
<td>343</td>
</tr>
<tr>
<td>The Emergence of the Patrimonial Middle Class</td>
<td>346</td>
</tr>
<tr>
<td>Inequality of Wealth in America</td>
<td>347</td>
</tr>
<tr>
<td>The Mechanism of Wealth Divergence: $r$ versus $g$ in History</td>
<td>350</td>
</tr>
<tr>
<td>Why Is the Return on Capital Greater Than the Growth Rate?</td>
<td>353</td>
</tr>
<tr>
<td>The Question of Time Preference</td>
<td>358</td>
</tr>
<tr>
<td>Is There an Equilibrium Distribution?</td>
<td>361</td>
</tr>
<tr>
<td></td>
<td>—1</td>
</tr>
<tr>
<td></td>
<td>—0</td>
</tr>
<tr>
<td></td>
<td>—+1</td>
</tr>
</tbody>
</table>
CONTENTS IN DETAIL

The Civil Code and the Illusion of the French Revolution 364
Pareto and the Illusion of Stable Inequality 366
Why Inequality of Wealth Has Not Returned to the Levels of the Past 368
Some Partial Explanations: Time, Taxes, and Growth 372
The Twenty-First Century: Even More Inegalitarian Than the Nineteenth? 375

11. Merit and Inheritance in the Long Run 377
   Inheritance Flows over the Long Run 379
   Fiscal Flow and Economic Flow 381
   The Three Forces: The Illusion of an End of Inheritance 383
   Mortality over the Long Run 385
   Wealth Ages with Population: The $\mu \times m$ Effect 388
   Wealth of the Dead, Wealth of the Living 390
   The Fifties and the Eighties: Age and Fortune in the Belle Époque 393
   The Rejuvenation of Wealth Owing to War 396
   How Will Inheritance Flows Evolve in the Twenty-First Century? 398
   From the Annual Inheritance Flow to the Stock of Inherited Wealth 401
   Back to Vautrin’s Lecture 404
   Rastignac’s Dilemma 407
   The Basic Arithmetic of Rentiers and Managers 410
   The Classic Patrimonial Society: The World of Balzac and Austen 411
   Extreme Inequality of Wealth: A Condition of Civilization in a Poor Society? 415
   Meritocratic Extremism in Wealthy Societies 416
   The Society of Petits Rentiers 418
   The Rentier, Enemy of Democracy 422
   The Return of Inherited Wealth: A European or Global Phenomenon? 424

12. Global Inequality of Wealth in the Twenty-First Century 430
   The Inequality of Returns on Capital 430
   The Evolution of Global Wealth Rankings 432

662
From Rankings of Billionaires to “Global Wealth Reports” 436
Heirs and Entrepreneurs in the Wealth Rankings 439
The Moral Hierarchy of Wealth 443
The Pure Return on University Endowments 447
What Is the Effect of Inflation on Inequality of Returns to Capital? 452
The Return on Sovereign Wealth Funds: Capital and Politics 455
Will Sovereign Wealth Funds Own the World? 458
Will China Own the World? 460
International Divergence, Oligarchic Divergence 463
Are the Rich Countries Really Poor? 465

Part Four: Regulating Capital in the Twenty-First Century 469

13. A Social State for the Twenty-First Century
   The Crisis of 2008 and the Return of the State 472
   The Growth of the Social State in the Twentieth Century 474
   Modern Redistribution: A Logic of Rights 479
   Modernizing Rather than Dismantling the Social State 481
   Do Educational Institutions Foster Social Mobility? 484
   The Future of Retirement: Pay-As-You-Go and Low Growth 487
   The Social State in Poor and Emerging Countries 490

14. Rethinking the Progressive Income Tax
   The Question of Progressive Taxation 493
   The Progressive Tax in the Twentieth Century: An Ephemeral Product of Chaos 498
   The Progressive Tax in the Third Republic 502
   Confiscatory Taxation of Excessive Incomes: An American Invention 505
   The Explosion of Executive Salaries: The Role of Taxation 508
   Rethinking the Question of the Top Marginal Rate 512

15. A Global Tax on Capital
   A Global Tax on Capital: A Useful Utopia 515
   Democratic and Financial Transparency 518
   A Simple Solution: Automatic Transmission of Banking Information 521
CONTENTS IN DETAIL

What Is the Purpose of a Tax on Capital? 524
A Blueprint for a European Wealth Tax 527
Capital Taxation in Historical Perspective 530
Alternative Forms of Regulation: Protectionism and
Capital Controls 534
The Mystery of Chinese Capital Regulation 535
The Redistribution of Petroleum Rents 537
Redistribution through Immigration 538

16. The Question of the Public Debt 540
Reducing Public Debt: Tax on Capital, Inflation,
and Austerity 541
Does Inflation Redistribute Wealth? 544
What Do Central Banks Do? 547
The Cyprus Crisis: When the Capital Tax and Banking
Regulation Come Together 553
The Euro: A Stateless Currency for the Twenty-First Century? 556
The Question of European Unification 558
Government and Capital Accumulation in the
Twenty-First Century 562
Law and Politics 565
Climate Change and Public Capital 567
Economic Transparency and Democratic Control of Capital 569

Conclusion 571
The Central Contradiction of Capitalism: $r > g$ 571
For a Political and Historical Economics 573
The Interests of the Least Well-Off 575

Notes 579
Contents in Detail 657
List of Tables and Illustrations 665
Index 671

-1— 0— +1— 664
Tables and Illustrations

Tables
Table 1.1. Distribution of world GDP, 2012 . 63
Table 2.1. World growth since the Industrial Revolution . 73
Table 2.2. The law of cumulated growth . 76
Table 2.3. Demographic growth since the Industrial Revolution . 79
Table 2.4. Employment by sector in France and the United States, 1800–2012 . 91
Table 2.5. Per capita output growth since the Industrial Revolution . 94
Table 3.1. Public wealth and private wealth in France in 2012 . 125
Table 5.1. Growth rates and saving rates in rich countries, 1970–2010 . 174
Table 5.2. Private saving in rich countries, 1970–2010 . 177
Table 5.3. Gross and net saving in rich countries, 1970–2010 . 178
Table 5.4. Private and public saving in rich countries, 1970–2010 . 186
Table 7.1. Inequality of labor income across time and space . 247
Table 7.2. Inequality of capital ownership across time and space . 248
Table 7.3. Inequality of total income (labor and capital) across time and space . 249
Table 10.1. The composition of Parisian portfolios, 1872–1912 . 371
Table 11.1. The age-wealth profile in France, 1820–2010 . 394
Table 12.1. The growth rate of top global wealth, 1987–2013 . 435
Table 12.2. The return on the capital endowments of US universities, 1980–2010 . 448

Illustrations
Figure I.1. Income inequality in the United States, 1910–2010 . 24
Figure I.2. The capital/income ratio in Europe, 1870–2010 . 26
Figure 1.1. The distribution of world output, 1700–2012 . 60
Figure 1.2. The distribution of world population, 1700–2012 . 60
Figure 1.3. Global inequality 1700–2012: divergence then convergence? . 61
Figure 1.4. Exchange rate and purchasing power parity: euro/dollar . 65
Figure 1.5. Exchange rate and purchasing power parity: euro/yuan . 67
TABLES AND ILLUSTRATIONS

Figure 2.1. The growth of world population, 1700–2012 . 75
Figure 2.2. The growth rate of world population from Antiquity to 2100 . 80
Figure 2.3. The growth rate of per capita output since the Industrial Revolution . 97
Figure 2.4. The growth rate of world per capita output from Antiquity to 2100 . 100
Figure 2.5. The growth rate of world output from Antiquity to 2100 . 101
Figure 2.6. Inflation since the Industrial Revolution . 108
Figure 3.1. Capital in Britain, 1700–2010 . 116
Figure 3.2. Capital in France, 1700–2010 . 117
Figure 3.3. Public wealth in Britain, 1700–2010 . 126
Figure 3.4. Public wealth in France, 1700–2010 . 127
Figure 3.5. Private and public capital in Britain, 1700–2010 . 128
Figure 3.6. Private and public capital in France, 1700–2010 . 128
Figure 4.1. Capital in Germany, 1870–2010 . 141
Figure 4.2. Public wealth in Germany, 1870–2010 . 143
Figure 4.3. Private and public capital in Germany, 1870–2010 . 144
Figure 4.4. Private and public capital in Europe, 1870–2010 . 145
Figure 4.5. National capital in Europe, 1870–2010 . 147
Figure 4.6. Capital in the United States, 1770–2010 . 151
Figure 4.7. Public wealth in the United States, 1770–2010 . 153
Figure 4.8. Private and public capital in the United States, 1770–2010 . 154
Figure 4.9. Capital in Canada, 1860–2010 . 157
Figure 4.10. Capital and slavery in the United States . 160
Figure 4.11. Capital around 1770–1810: Old and New World . 161
Figure 5.1. Private and public capital: Europe and the United States, 1870–2010 . 165
Figure 5.2. National capital in Europe and America, 1870–2010 . 165
Figure 5.3. Private capital in rich countries, 1970–2010 . 171
Figure 5.4. Private capital measured in years of disposable income . 181
Figure 5.5. Private and public capital in rich countries, 1970–2010 . 184
Figure 5.6. Market value and book value of corporations . 189
Figure 5.7. National capital in rich countries, 1970–2010 . 192
Figure 5.8. The world capital/income ratio, 1870–2100 . 196
Figure 6.1. The capital-labor split in Britain, 1770–2010 . 200
TABLES AND ILLUSTRATIONS

Figure 6.2. The capital-labor split in France, 1820–2010 · 201
Figure 6.3. The pure return on capital in Britain, 1770–2010 · 202
Figure 6.4. The pure rate of return on capital in France, 1820–2010 · 202
Figure 6.5. The capital share in rich countries, 1975–2010 · 222
Figure 6.6. The profit share in the value added of corporations in France, 1900–2010 · 226
Figure 6.7. The share of housing rent in national income in France, 1900–2010 · 226
Figure 6.8. The capital share in national income in France, 1900–2010 · 227
Figure 8.1. Income inequality in France, 1910–2010 · 272
Figure 8.2. The fall of rentiers in France, 1910–2010 · 273
Figure 8.3. The composition of top incomes in France in 1932 · 276
Figure 8.4. The composition of top incomes in France in 2005 · 277
Figure 8.5. Income inequality in the United States, 1910–2010 · 291
Figure 8.6. Decomposition of the top decile, United States, 1910–2010 · 292
Figure 8.7. High incomes and high wages in the United States, 1910–2010 · 299
Figure 8.8. The transformation of the top 1 percent in the United States · 300
Figure 8.9. The composition of top incomes in the United States in 1929 · 301
Figure 8.10. The composition of top incomes in the United States, 2007 · 302
Figure 9.1. Minimum wage in France and the United States, 1950–2013 · 309
Figure 9.2. Income inequality in Anglo-Saxon countries, 1910–2010 · 316
Figure 9.3. Income inequality in Continental Europe and Japan, 1910–2010 · 317
Figure 9.4. Income inequality in Northern and Southern Europe, 1910–2010 · 318
Figure 9.5. The top decile income share in Anglo-Saxon countries, 1910–2010 · 319
Figure 9.6. The top decile income share in Continental Europe and Japan, 1910–2010 · 320
Figure 9.7. The top decile income share in Europe and the United States, 1900–2010 · 323
Figure 9.8. Income inequality in Europe versus the United States, 1900–2010 · 324
Figure 9.9. Income inequality in emerging countries, 1910–2010 · 327
Figure 10.1. Wealth inequality in France, 1810–2010 · 340
TABLES AND ILLUSTRATIONS

Figure 10.2. Wealth inequality in Paris versus France, 1810–2010 • 341
Figure 10.3. Wealth inequality in Britain, 1810–2010 • 344
Figure 10.4. Wealth inequality in Sweden, 1810–2010 • 345
Figure 10.5. Wealth inequality in the United States, 1810–2010 • 348
Figure 10.6. Wealth inequality in Europe versus the United States, 1810–2010 • 349
Figure 10.7. Return to capital and growth: France, 1820–1913 • 352
Figure 10.8. Capital share and saving rate: France, 1820–1913 • 352
Figure 10.9. Rate of return versus growth rate at the world level, from Antiquity until 2100 • 354
Figure 10.10. After tax rate of return versus growth rate at the world level, from Antiquity until 2100 • 356
Figure 10.11. After tax rate of return versus growth rate at the world level, from Antiquity until 2200 • 357
Figure 11.1. The annual inheritance flow as a fraction of national income, France, 1820–2010 • 380
Figure 11.2. The mortality rate in France, 1820–2100 • 386
Figure 11.3. Average age of decedents and inheritors, France, 1820–2100 • 389
Figure 11.4. Inheritance flow versus mortality rate, France, 1820–2010 • 390
Figure 11.5. The ratio between average wealth at death and average wealth of the living, France, 1820–2010 • 391
Figure 11.6. Observed and simulated inheritance flow, France, 1820–2100 • 399
Figure 11.7. The share of inherited wealth in total wealth, France, 1850–2100 • 402
Figure 11.8. The annual inheritance flow as a fraction of household disposable income, France, 1820–2010 • 404
Figure 11.9. The share of inheritance in the total resources (inheritance and work) of cohorts born in 1790–2030 • 405
Figure 11.10. The dilemma of Rastignac for cohorts born in 1790–2030 • 408
Figure 11.11. Which fraction of a cohort receives in inheritance the equivalent of a lifetime labor income? • 421
Figure 11.12. The inheritance flow in Europe, 1900–2010 • 425
Figure 12.1. The world’s billionaires according to Forbes, 1987–2013 • 433
Figure 12.2. Billionaires as a fraction of global population and wealth, 1987–2013 • 434

668
TABLES AND ILLUSTRATIONS

Figure 12.3. The share of top wealth fractiles in world wealth, 1987–2013  ·  436
Figure 12.4. The world capital/income ratio, 1870–2100  ·  461
Figure 12.5. The distribution of world capital, 1870–2100  ·  462
Figure 12.6. The net foreign asset position of rich countries  ·  466
Figure 13.1. Tax revenues in rich countries, 1870–2010  ·  475
Figure 14.1. Top income tax rates, 1900–2013  ·  499
Figure 14.2. Top inheritance tax rates, 1900–2013  ·  503