

Chapter 16

Ingredients of Growth
Production Possibilities
Labor and Productivity
Growth in the AD-AS Model
Accounting for Growth
A New Economy
Growth Desirability
Last Word

16



Economic Growth

Key Terms



End Show



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Chapter Objectives

- **The General Ingredients of Economic Growth and How They Relate to Production Possibilities Analysis and Long-Run Aggregate Supply**
- **“Growth Accounting” and the Specific Sources of U.S. Economic Growth**
- **Why U.S. Productivity Growth Has Accelerated Since the Mid-1990s**
- **Differing Perspectives on Whether Growth is Desirable and Sustainable**

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Ingredients of Growth (6)

• Supply Factors

- 1. Increases in Quantity and Quality of Natural Resources
- 2. Increases in Quality and Quantity of Human Resources
- 3. Increases in the Supply (or Stock) of Capital Goods
- 4. Improvements in Technology

Key Terms



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Ingredients of Growth

- **Demand Factor**
 - 5. Households, Businesses, And Government *Must Purchase* the Economy's Expanding Output of Goods and Services
- **Efficiency Factor**
 - 6. Must Achieve Economic Efficiency and Full Employment

Key Terms



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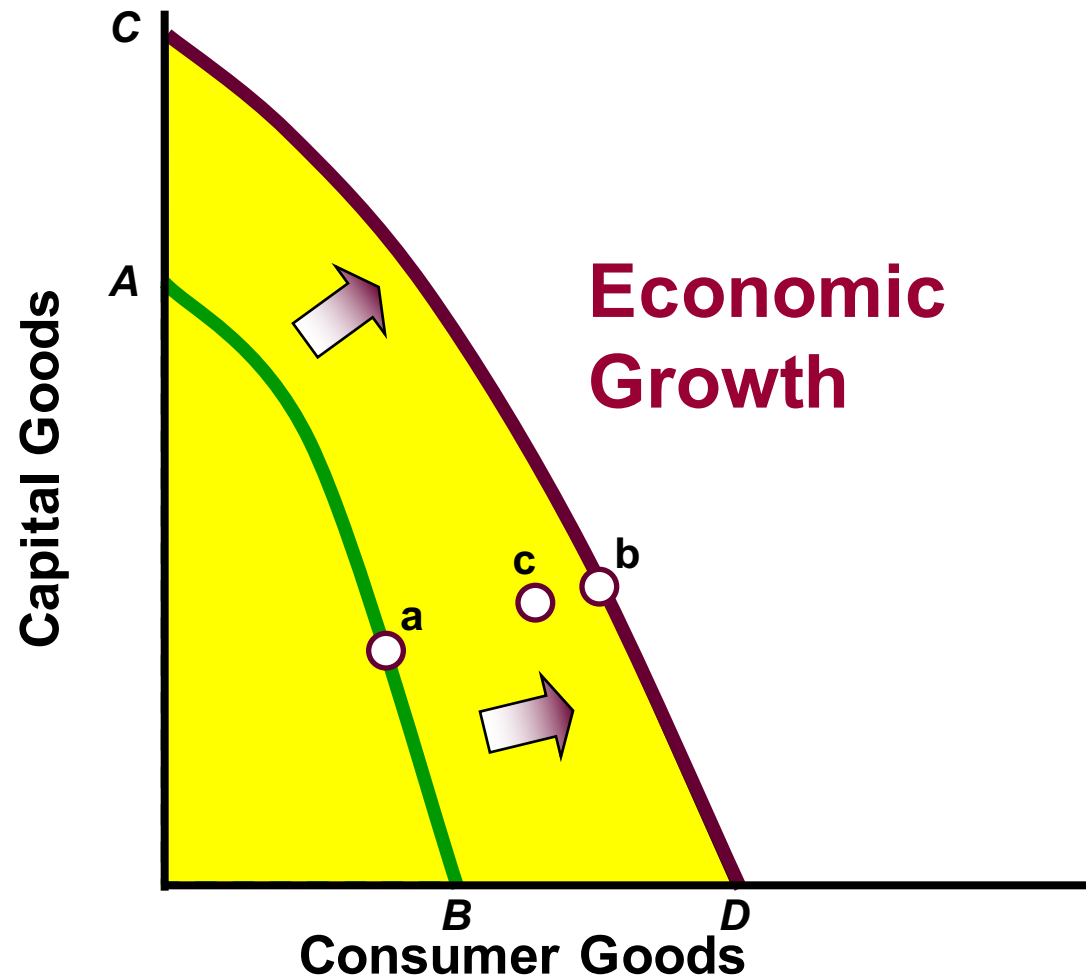
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Production Possibilities

Production Possibilities Curve

From Chapter 1

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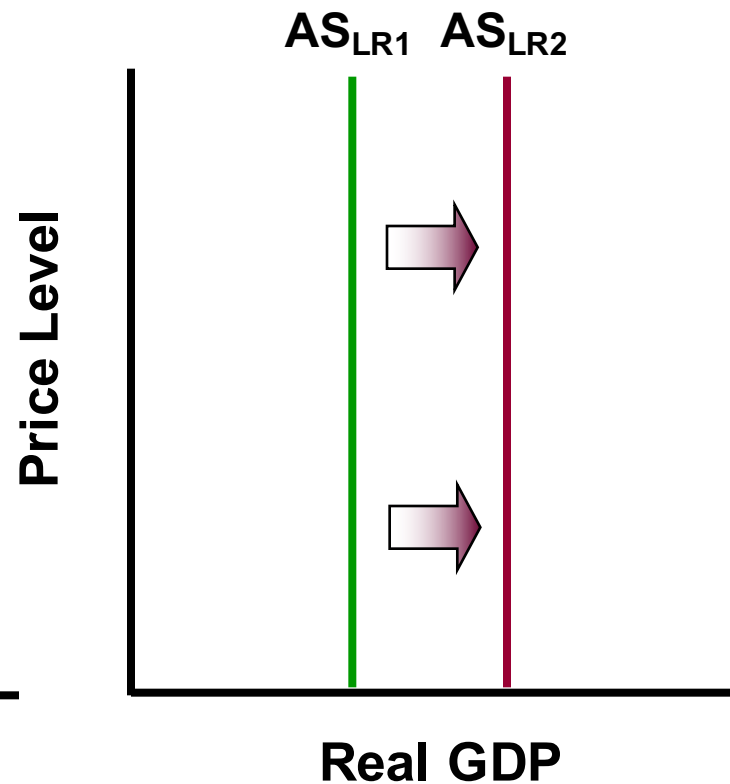
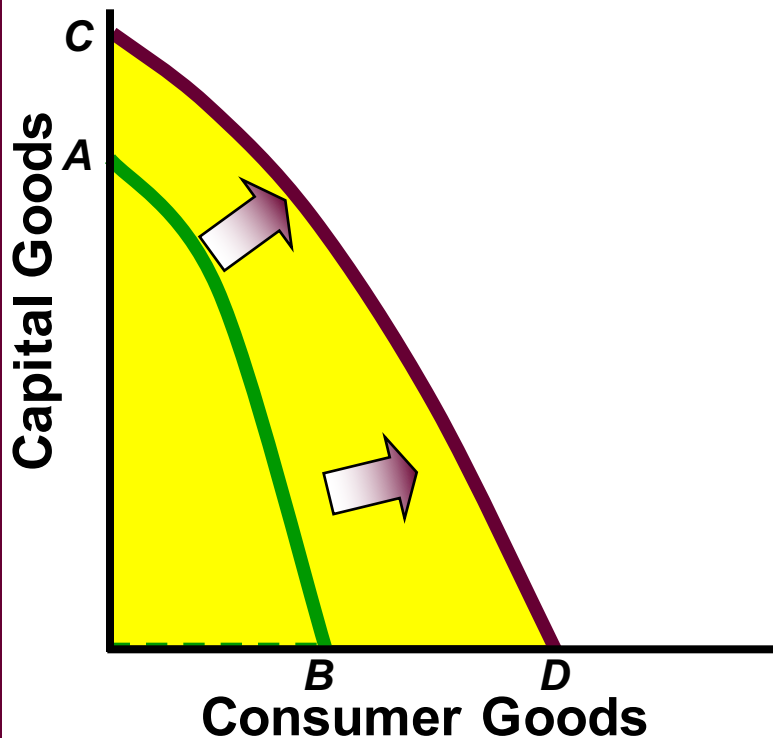
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Growth in the AD-AS Model *Production Possibilities and Aggregate Supply*

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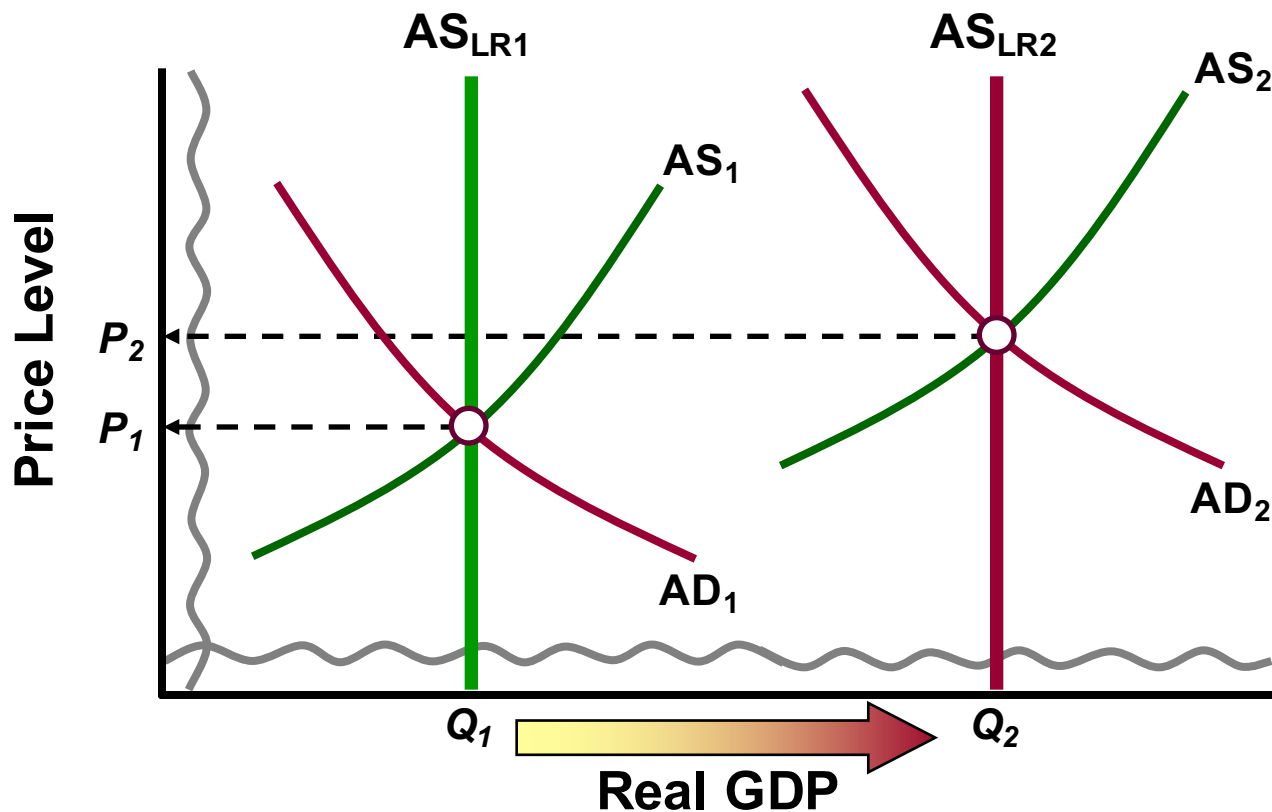


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Growth in the AD-AS Model

Production Possibilities and Aggregate Supply

Depicting U.S. Growth with AD-AS Model



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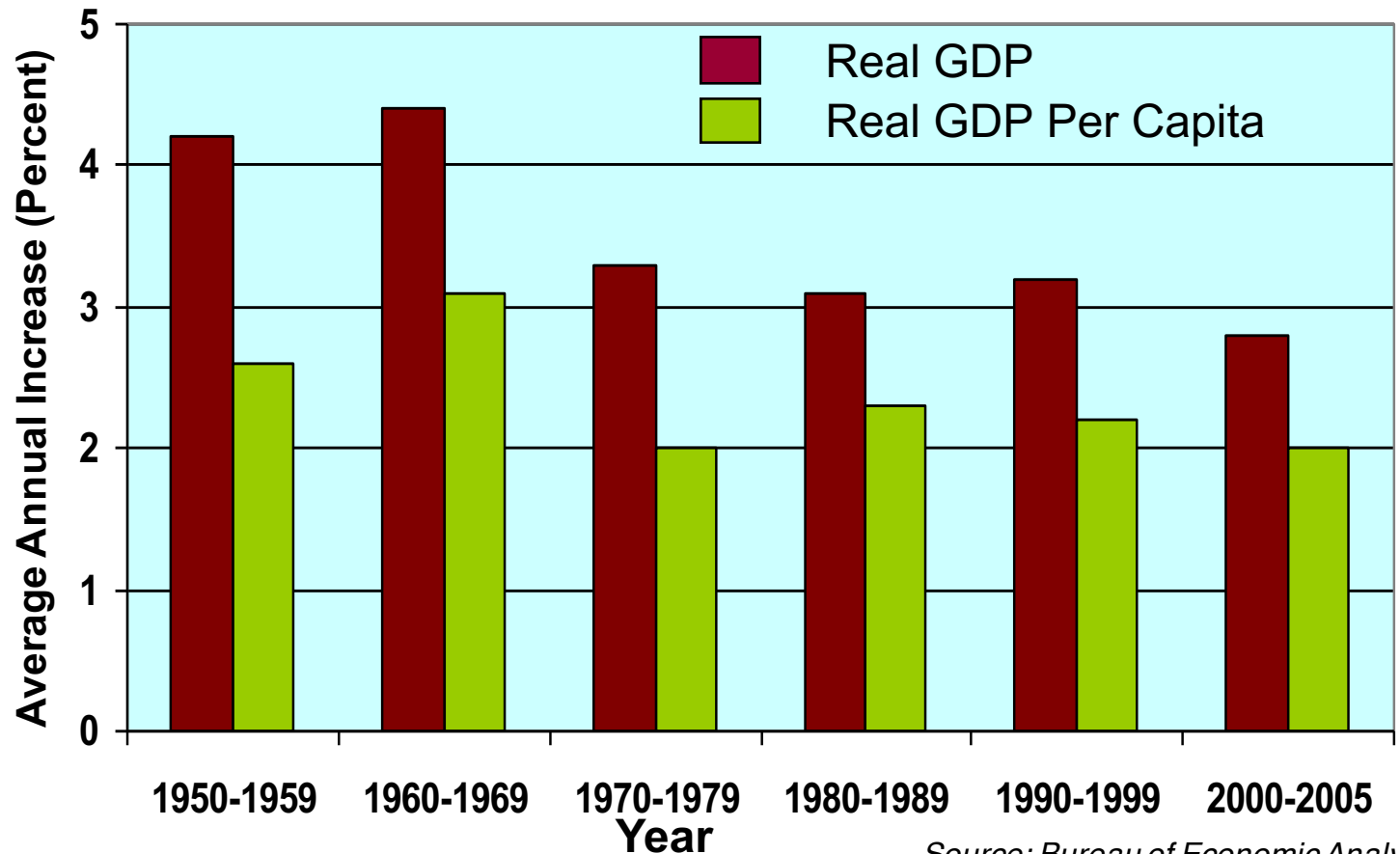
Accounting for Growth

- Growth Accounting
- U.S. Economic Growth Rates



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U.S. Economic Growth, Annual Averages for Five Decades



Source: Bureau of Economic Analysis

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Accounting for Growth

- **Factors Underlying Growth**
 - Increases in Hours of Work
 - Increases in Labor Productivity

Accounting for Growth of U.S. Real GDP, 1953-2011
(Annual Percentage Changes)

Item	1953 Q2 to 1973 Q4	1973 Q4 to 1995 Q2	1995 Q2 to 2001 Q1	2001 Q1 to 2005 Q3	2005 Q3 to 2011 Q4*
Increases in Real GDP	3.6	2.8	3.8	2.8	3.2
Increases in Quantity of Labor	1.2	1.5	1.7	-0.6	0.8
Increases in Labor Productivity	2.4	1.3	2.1	3.4	2.4

*Beyond 2005 are Projections

Source: Economic Report of the President, 2006

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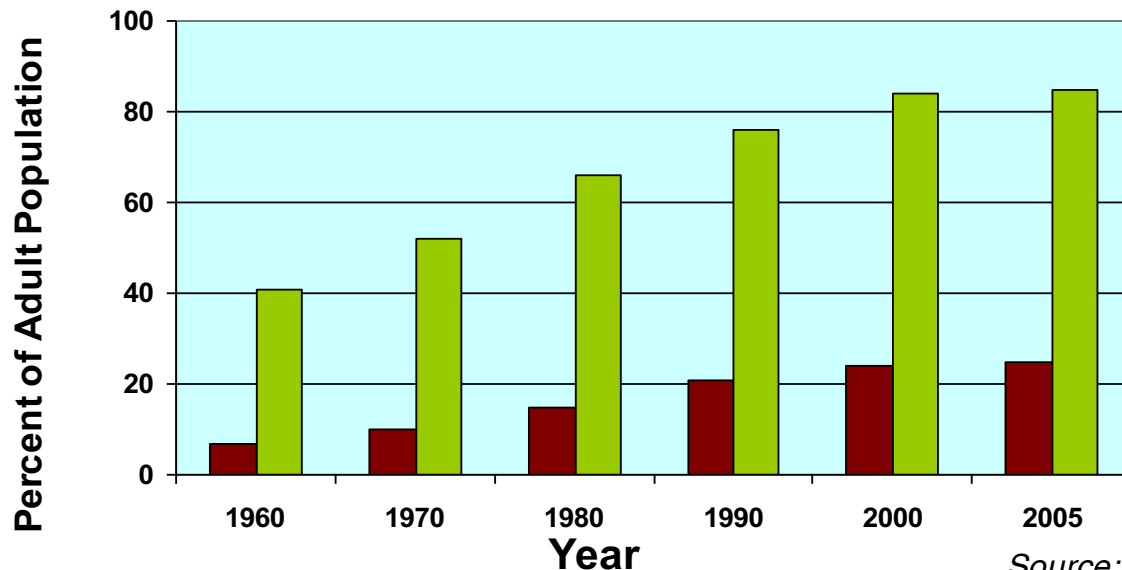


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Accounting for Growth

- Technological Advance ~40% of growth
- Quantity of Capital (per worker) ~30% of growth
 - Infrastructure (public capital)
- Education and Training ~15% of growth
 - Human Capital (knowledge, skills)

Changes in the Educational Attainment of the U.S. Adult Population



Source: U.S. Census Bureau



Accounting for Growth



GLOBAL PERSPECTIVE

Average Test Scores of Eighth Students In Math and Science, Top 10 Countries and the United States

Mathematics

1	Singapore	605
2	South Korea	589
3	Hong Kong	586
4	Taiwan	585
5	Japan	570
6	Belgium	537
7	Netherlands	536
8	Estonia	531
9	Hungary	529
10	Malaysia	508
15	United States	504

Science

1	Singapore	578
2	Taiwan	571
3	South Korea	558
4	Hong Kong	556
5	Estonia	552
6	Japan	552
7	Hungary	543
8	Netherlands	536
9	United States	527
10	Australia	527

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Accounting for Growth

- **Economies of Scale** – per unit production costs decrease as firms increase production
- **Improved Resource Allocation** – over time workers have been able to find more productive jobs
- **Other Factors**
 - **Economic Freedom – Market System**
 - **Political Freedom – open opportunity**
 - **Positive Attitudes Toward Work and Risk Taking – I ♥ Innovation!**

Key Terms



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A New Economy?

- Productivity Acceleration
 - 1.4% Average Growth 1973-1995
 - 2.9% Average Growth 1995-2004
 - **Proof of a LR change in our economy?**
- Reasons for Acceleration
 - The Microchip and Information Technology
 - accounts for vast improvements in all aspects of our economy!
 - New Firms and Increasing Returns
 - Start-Up Firms (many fail but check out this list!)
 - Apple, Microsoft, Dell, Intel, Oracle, Cisco Systems, Yahoo, Google, Amazon, Ebay

Key Terms



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A New Economy?

- Increasing Returns
 - More Specialized Inputs (increasing efficiency)
 - Spreading of Development Costs (high R&D costs spread over large output -EX- software)
 - Simultaneous Consumption (EX- cell service, satellite TV, internet)
 - Network Effects (each person get more utilization with increasing customers)
- Global Competition
 - Collapse of communism + free trade agreements + globalization = increasing competition!

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A New Economy?

- **Implication: More Rapid Growth**
 - As long as productivity continues to grow, we can avoid the high inflation that can come with economic growth
- **Skepticism About Permanence**
 - Can we keep up this pace?
- **What Can We Conclude?**
 - More Rapid Long-Run Trend of Productivity Growth
 - Time Will Tell If Growth is Sustainable

Key Terms



End Show



A New Economy?



GLOBAL PERSPECTIVE

Growth Competitiveness Index

Country *Ranking*

Finland	1
United States	2
Sweden	3
Denmark	4
Taiwan	5
Singapore	6
Iceland	7
Switzerland	8
Norway	9
Australia	10

Source: World Economic Forum

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Growth Desirability

- Is Growth Desirable and Sustainable?
- The Antigrowth View
 - Negative Externalities
 - Alternative Quality of Life Opinions
- In Defense of Economic Growth
 - Higher Standard of Living
 - Poverty Reduction
 - Limited Only by Human Imagination

Key Terms



End Show



Economic Growth in China

Last Word

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- **Nearly 9% Growth Rate Over the Past 25 Years**
- **Growth in Capital Goods Boosts Productivity, Output, and Income**
- **More Foreign Investment**
- **Per Capita Income Increasing at 8%**
- **Shifts to Higher Productivity Employment**
- **Shift from State Owned Enterprises to Private**

Key Terms



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Economic Growth in China

Last Word.

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- Huge Expansion of Trade
- Some Periods of Inflation
- Unemployment from State Owned Activities is Significant
- WTO 2001 Participation Supports Copyright and Intellectual Property Protections
- Wide Income Disparity Throughout China
- Incomes are Low But Rapidly Changing

Key Terms



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Key Terms

- economic growth
- supply factors
- demand factor
- efficiency factor
- labor productivity
- labor-force participation rate
- growth accounting
- infrastructure
- human capital
- economies of scale
- New economy
- information technology
- start-up firms
- increasing returns
- network effects
- learning by doing

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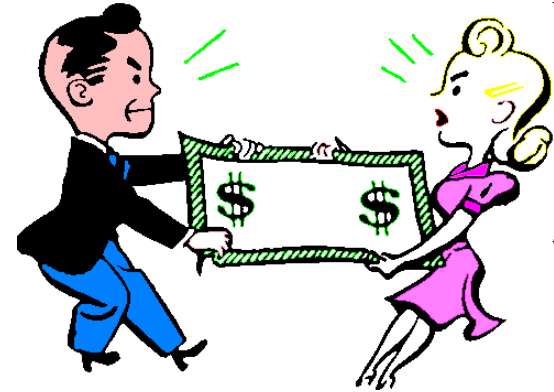
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Next Chapter Preview...



Disputes over Macro Theory And Policy

Chapter 17!