ECONOMIC GROWTH

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AP Economics - Macro: VI

GROWTH ECONOMICS

Supply Factors

- Increases in the Quantity & Quality of Natural Resources
- Increases in the Quantity & Quality of Human Resources
- Increases in the Supply (or Stock) of Capital Goods
- Improvements in Technology

GROWTH ECONOMICS

Demand Factor

- Households, Businesses, and Government Must Purchase the Economy's Expanded Output

Efficiency Factor

- The Economy Must Achieve Economic Efficiency as well as Full Employment

GROWTH ECONOMICS

- Supply / Demand factors summarized in “The Three Pillars Of Growth”
- Capital
- Technology
- Education and Training

The Three Pillars of Productivity Growth

- Capital
  - For a given technology and labor force, labor productivity will be higher when the capital stock is larger.

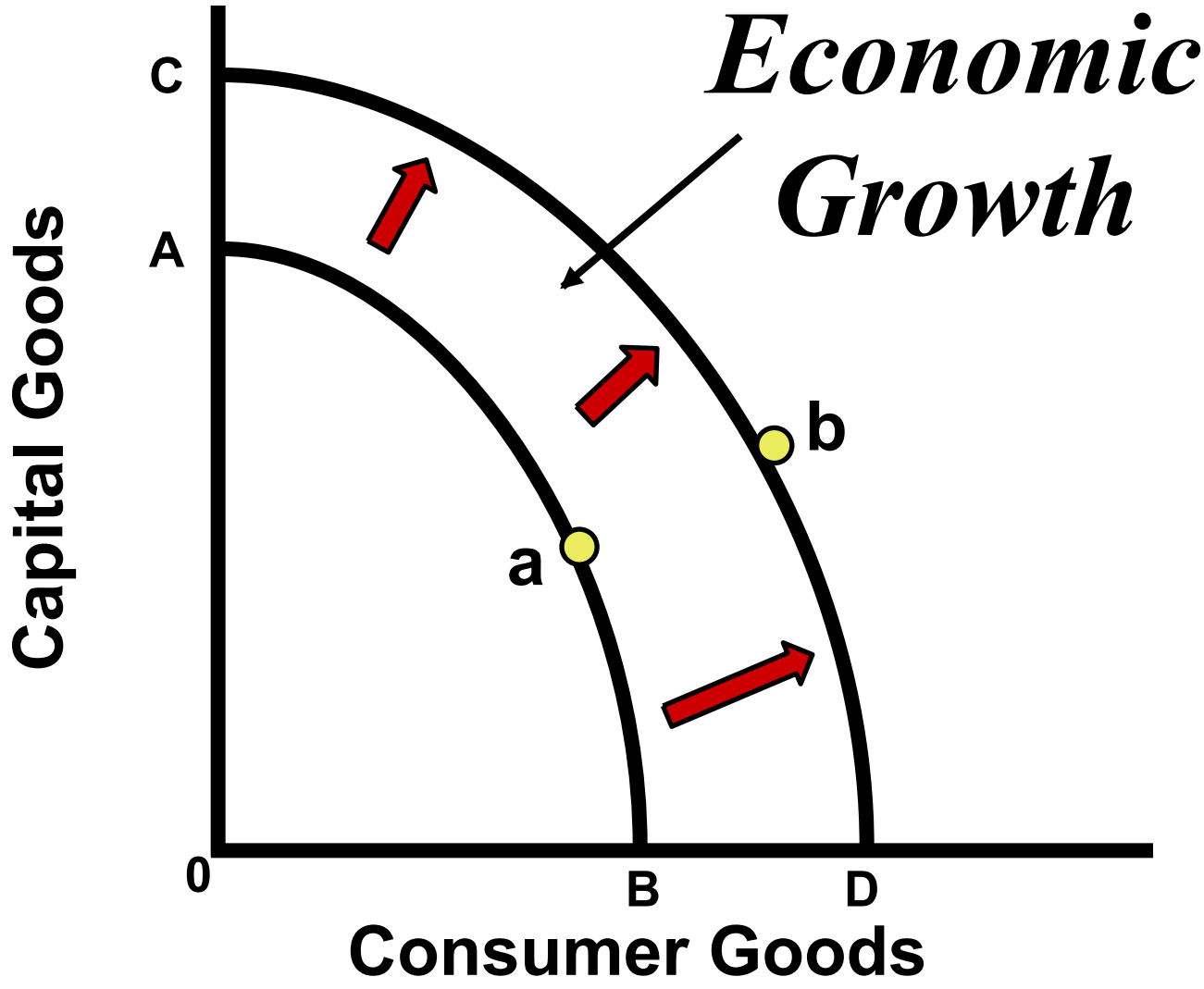
The Three Pillars of Productivity Growth

- Technology
  - For given inputs of labor and capital, labor productivity will be higher when technology is better.

The Three Pillars of Productivity Growth

- Labor Quality: Education and Training
  - Human Capital = The amount of skill embedded in the workforce. Measured by amounts of education and training.
  - For a given capital stock and given technology, labor productivity will be higher when the workforce has more education and training.

PRODUCTION POSSIBILITIES ANALYSIS



Growth Rates

- Rate of increase of capital, technology, and workforce size and quality directly related to rate of productivity growth.
- Convergence hypothesis: The productivity growth rates of poorer countries tend to be higher than those of richer countries.

Growth Policy: Encouraging Capital Formation

- Capital Formation = Forming new capital. Synonymous with investment.
- Investment = The flow of resources into the production of new capital.

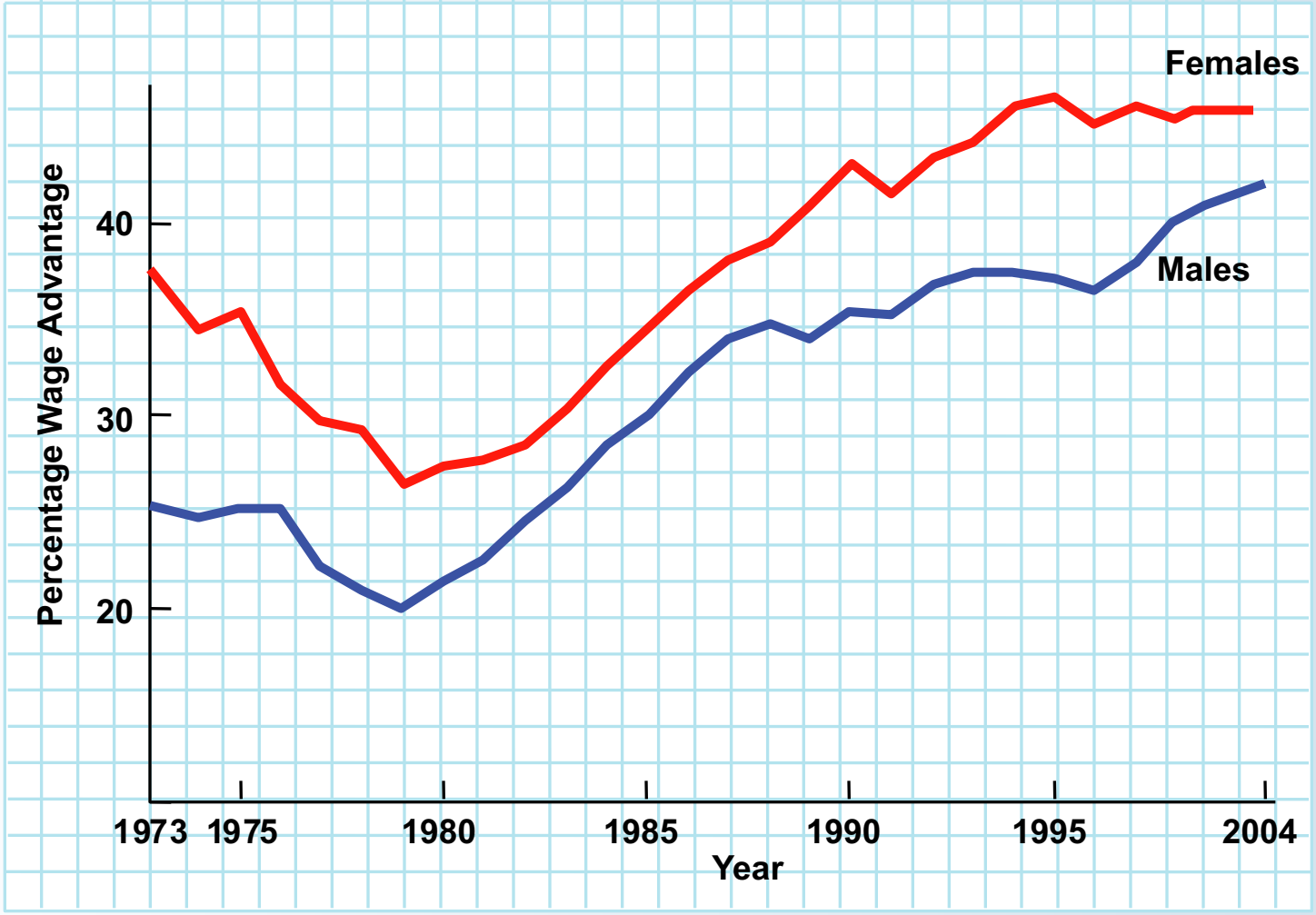
Growth Policy: Encouraging Capital Formation

- Investment is encouraged by
  - Lower interest rates
  - Changes to tax laws
  - Technological advances
  - Higher demand
  - Greater political stability and respect for property rights

Growth Policy: Improving Education and Training

- More-educated, better-trained workers are more productive and earn higher wages.
- Education and training enhance productivity.

Wage Premium for College Graduates



Growth Policy: Spurring Technological Change

- Technological advance spurred by
  - More education
  - More capital formation
  - Research and development

PRODUCTION POSSIBILITIES ANALYSIS

Growth and Production Possibilities

Labor and Productivity

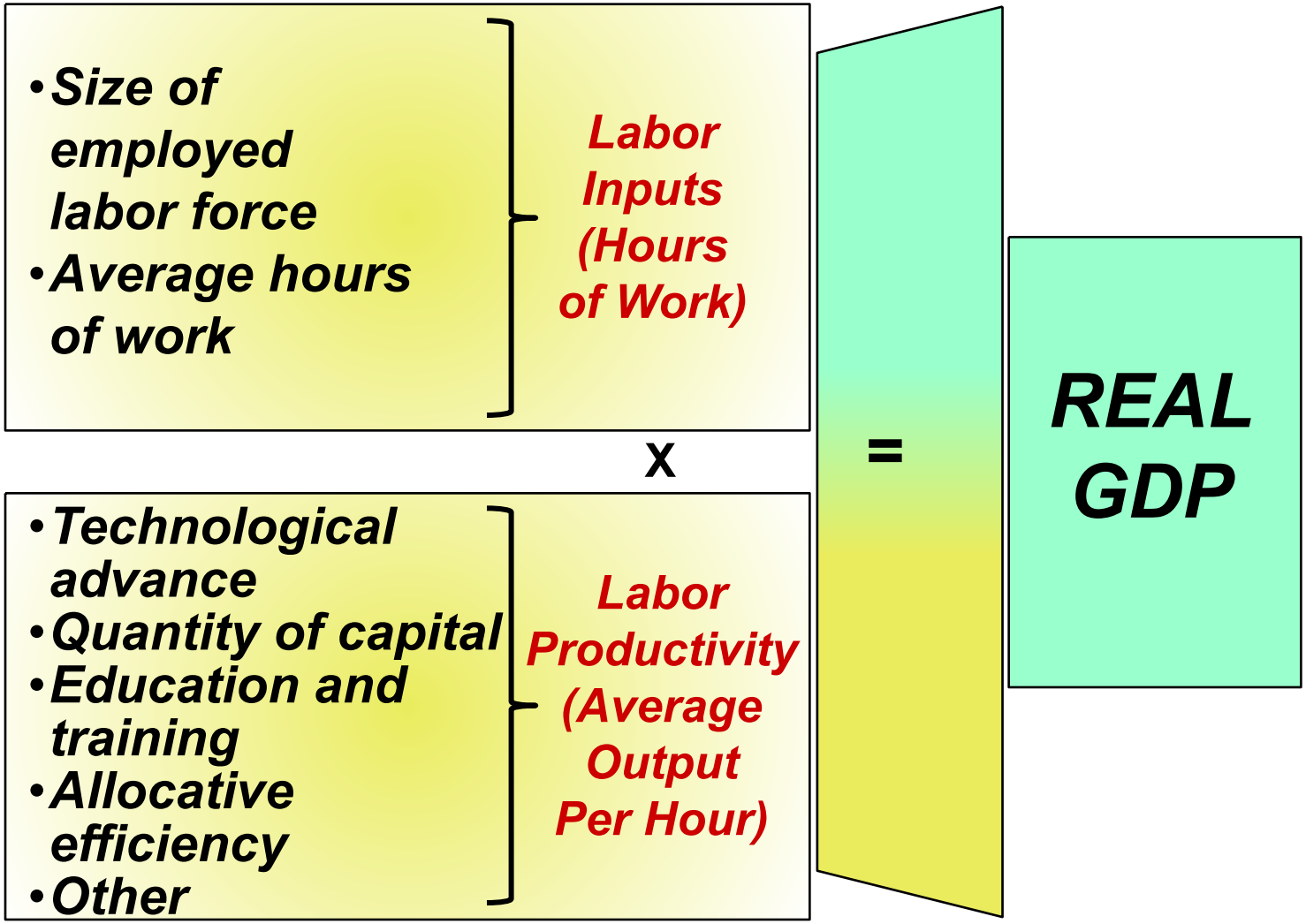
$$\text{Real GDP} = \text{Hours of Work} \times \text{Labor Productivity}$$

Hours of Work

Labor-Force Participation Rate

Labor Productivity

SUPPLY DETERMINANTS OF REAL OUTPUT

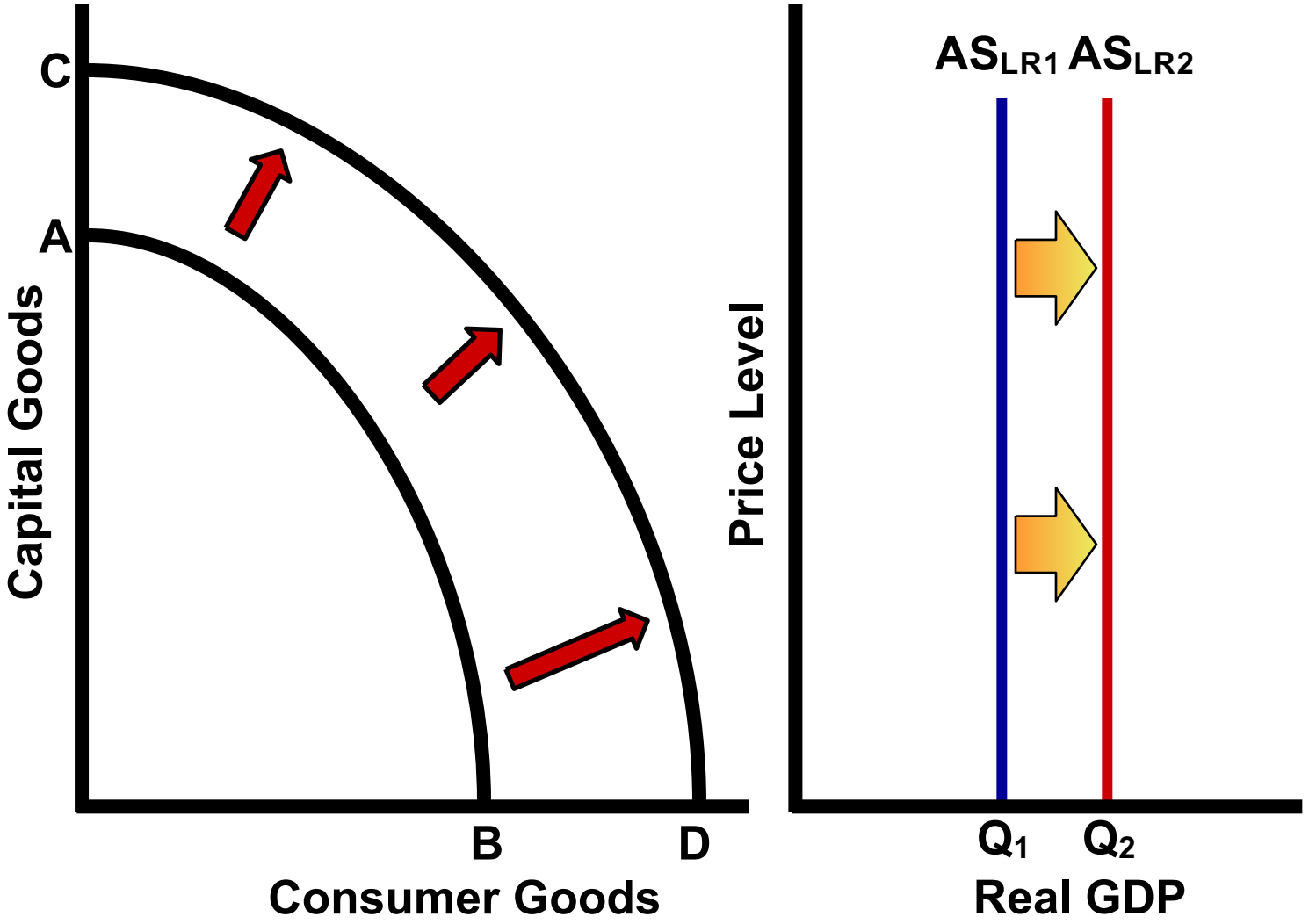


GROWTH IN THE AD-AS MODEL

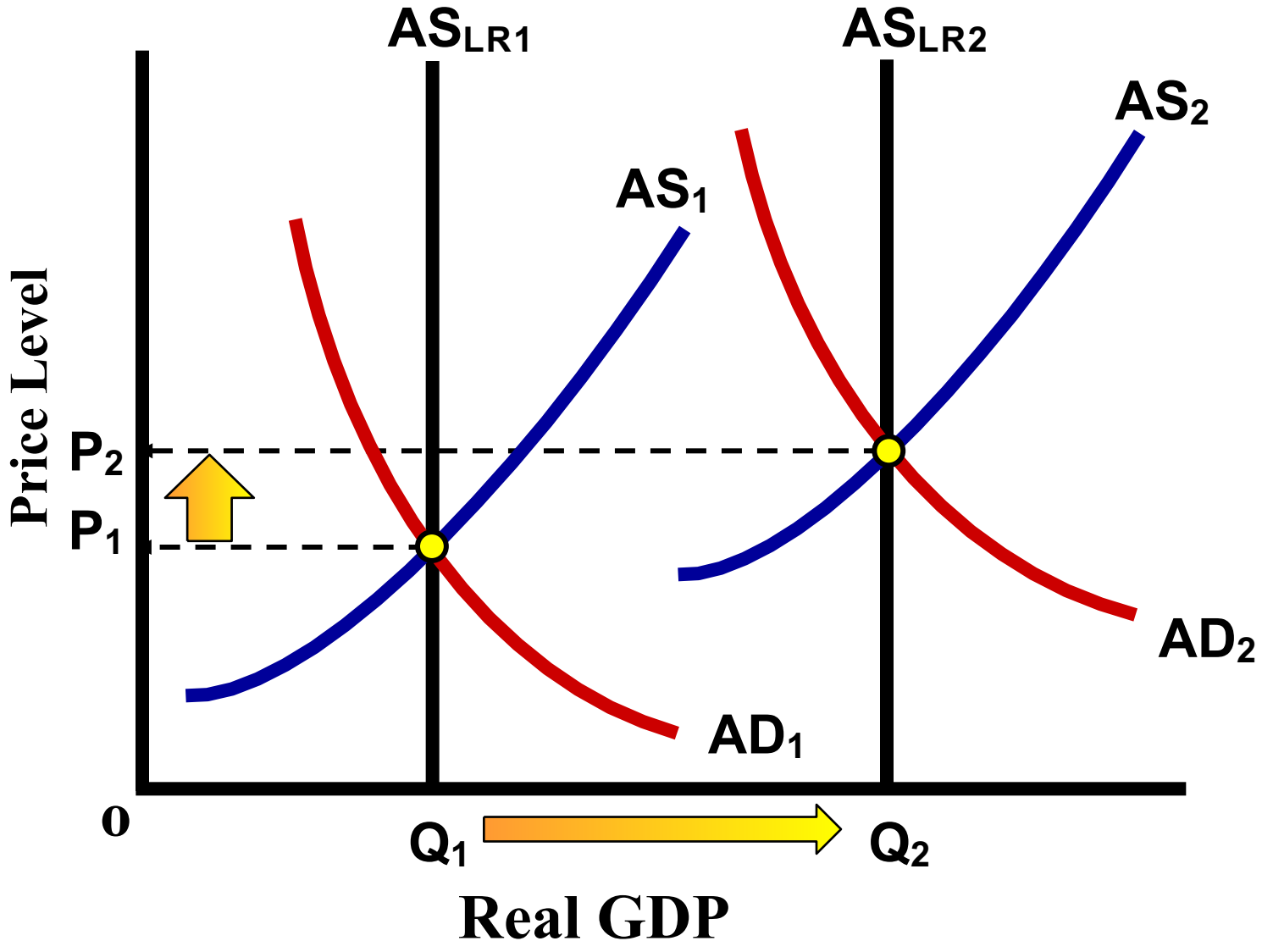
Production Possibilities and Aggregate Supply

Extended AD-AS Model

GROWTH IN THE AD-AS MODEL

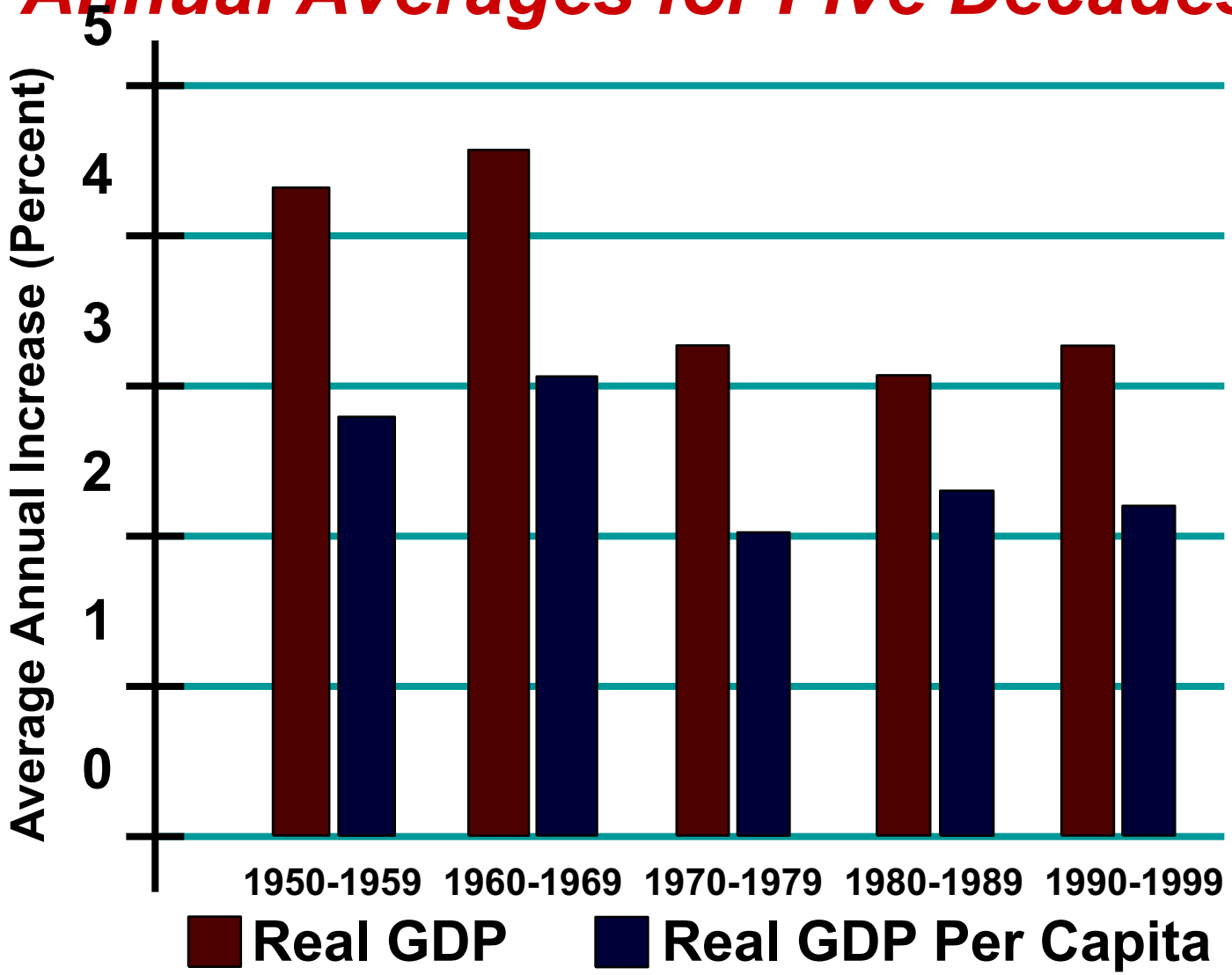


ECONOMIC GROWTH IN THE EXTENDED AD – AS MODEL

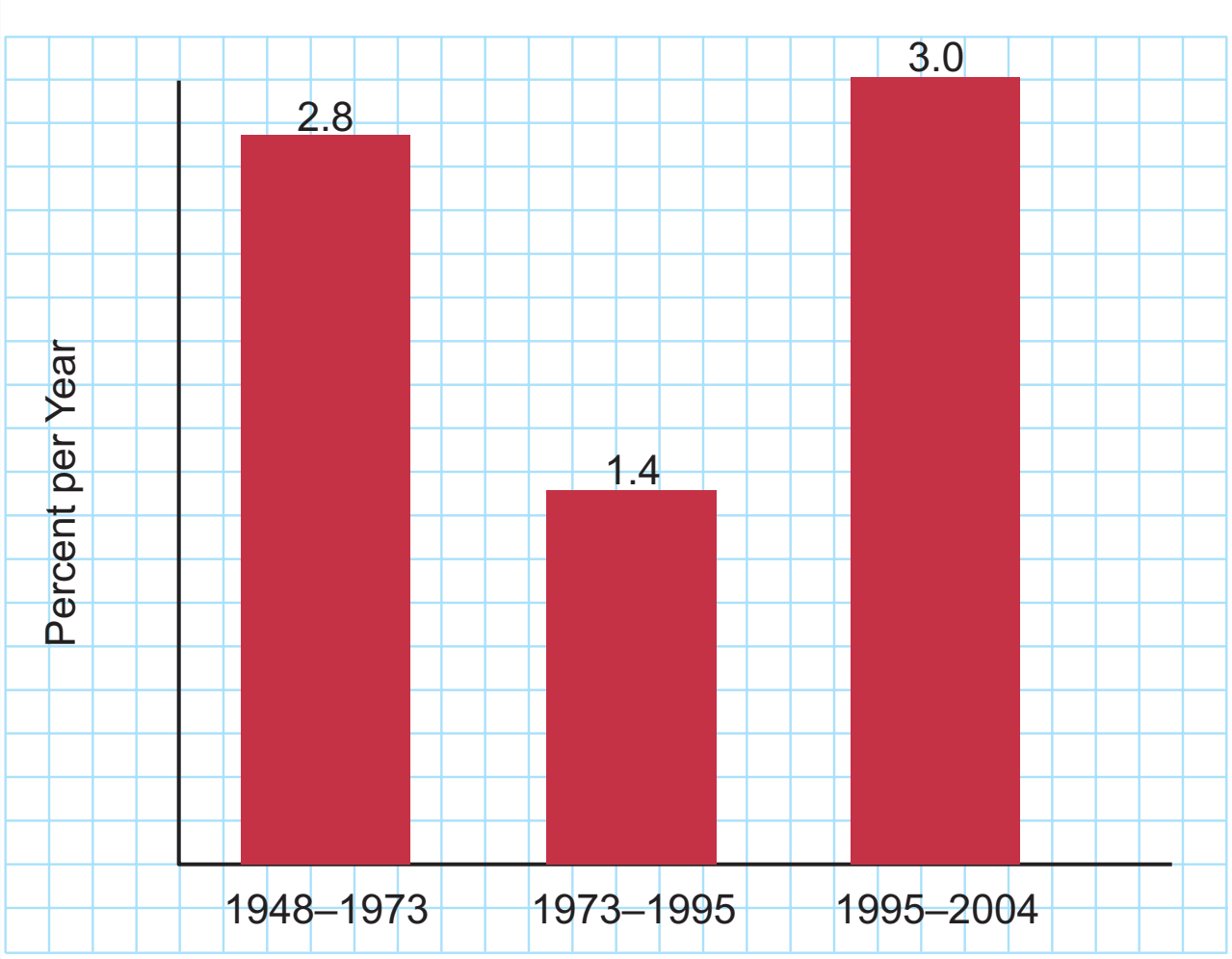


U.S. ECONOMIC GROWTH RATES

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



Average Productivity Growth Rates in the U.S.



ACCOUNTING FOR GROWTH

Accounting for Growth of U.S. Output, 1960-2008

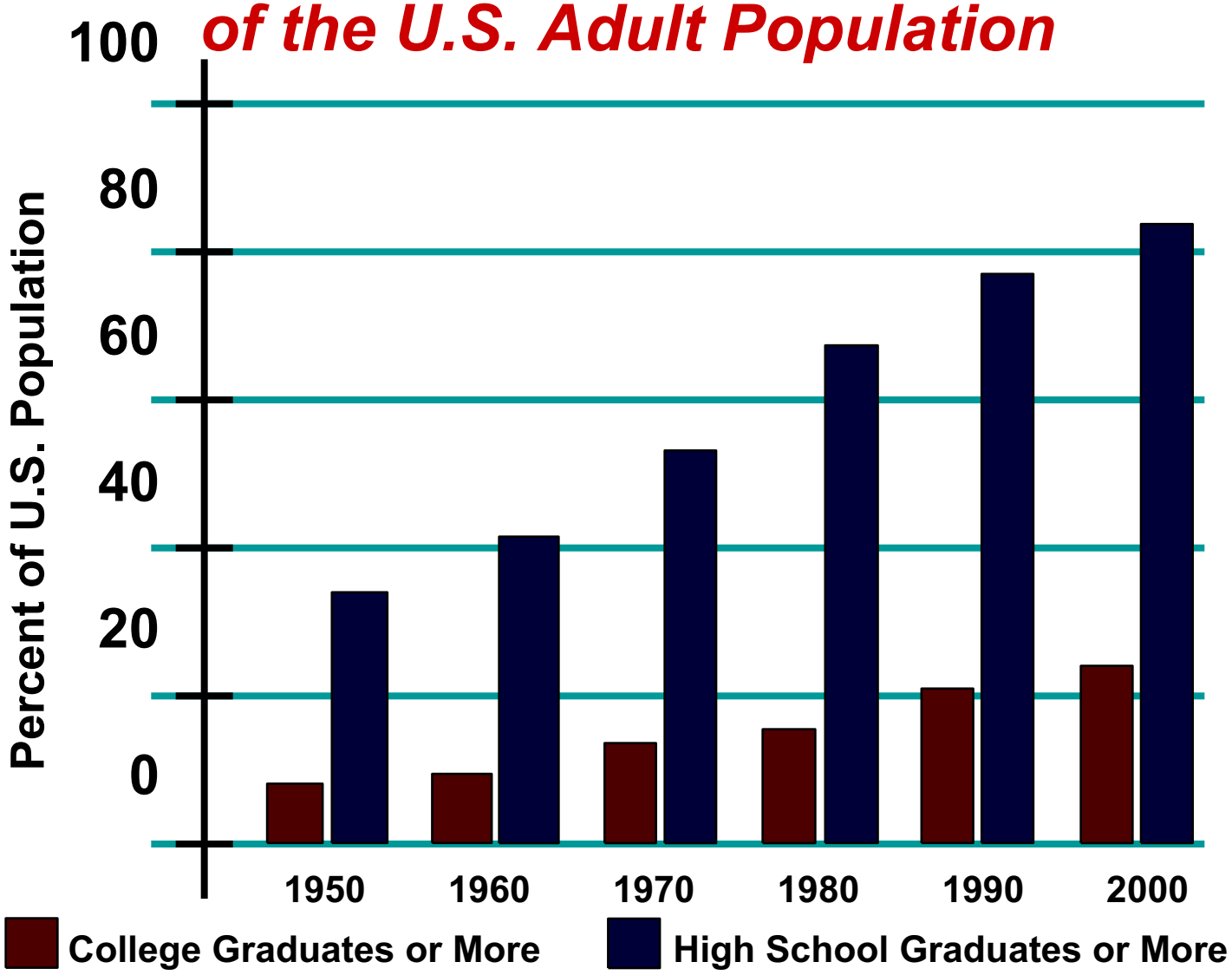
	1960 Q2 to 1973 Q4	1973 Q4 to 1990 Q3	1990 Q3 to 2002 Q3	2002 Q3 to 2008 Q4*
Increase in Real GDP	4.2	2.9	2.9	3.2
Increase in quantity of labor	1.6	1.6	0.9	1.4
Increase in labor productivity	2.6	1.3	2.0	1.8

**Rates beyond 2002 are projections*

Source: Economic Report of the President, 2003

ACCOUNTING FOR GROWTH

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



Source: U.S. Census Bureau

ACCOUNTING FOR GROWTH

Economies of Scale

Improved Resource Allocation

Other Factors

PRODUCTIVITY ACCELERATION: A NEW ECONOMY?

Reasons for the Productivity Acceleration

- Microchip and Information Technology
- New Firms and Increasing Returns
- Start-Up Firms

The Productivity Slowdown and Speed-Up in the U.S.

- The Productivity Slowdown, 1973-1995
  - Growth rate of productivity declined sharply from the early 1970s through the mid 1990s.

The Productivity Slowdown and Speed-Up in the U.S.

- Explanations include:
  - Lagging investment; BUT statistics show that investment as a percentage of GDP stayed constant during this period.
  - High Energy Prices; BUT energy prices fell sharply in mid-1980s while productivity growth failed to rise.

The Productivity Slowdown and Speed-Up in the U.S.

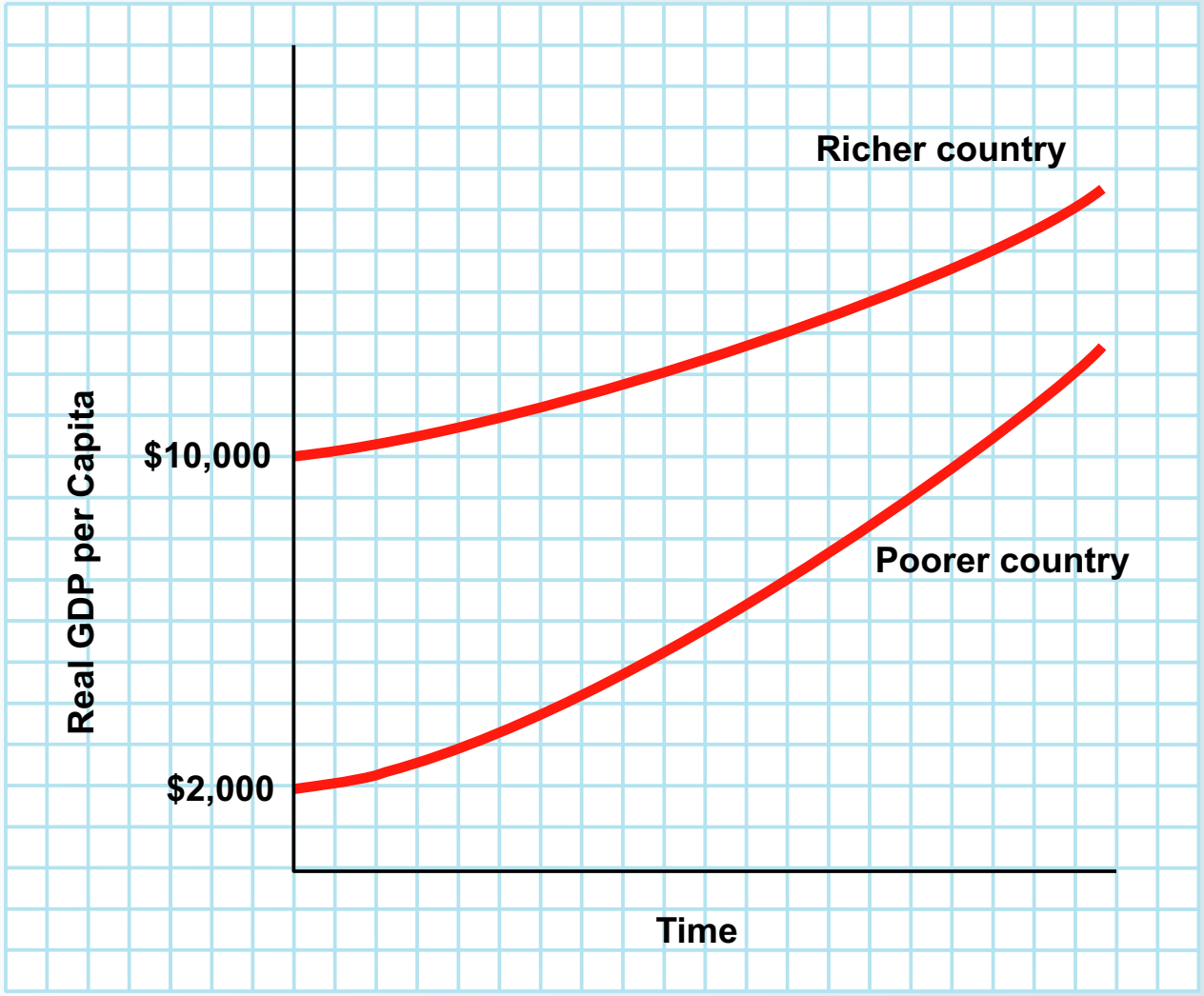
- Explanations include:
  - Inadequate workforce skills; BUT standard measures of educational attainment and quality continued to rise.
  - Technological slowdown; BUT technological advance may have merely slowed relative to the “golden age” of the ’50s and ’60s before reviving in the computer era.

The Productivity Slowdown and Speed-Up in the U.S.

- The Productivity Speed-Up, 1995-??
  - Productivity growth started speeding up around 1995, rising from 1.4% to about 2.5% per year.
  - Higher productivity growth likely caused by:
    - Surging investment
    - Falling energy prices
    - Advances in information technology

Growth in the Developing Countries

Productivity Levels and Growth Rates



Growth in the Developing Countries

- Three Pillars Revisited
  - Capital
    - Low capital endowments and challenges to accumulating capital
    - Development assistance

Growth in the Developing Countries

- Three Pillars Revisited
  - Technology
    - Lack the expertise to adopt existing technology in rich countries
    - Foreign direct investment by multinational corporations

Growth in the Developing Countries

- Three Pillars Revisited
  - Education and training
    - Dramatic differences across industrialized versus developing countries
    - Promotion of primary education

Average Years of Schooling for Selected Countries

TABLE 4

Average Educational Attainment in Selected Countries, 2000*

United States	**12.3**
Canada	11.4
South Korea	10.5
Japan	9.7
United Kingdom	9.4
Italy	7.0
Mexico	6.7
India	4.8
Brazil	4.6
Sudan	1.9

* For people older than twenty-five years of age

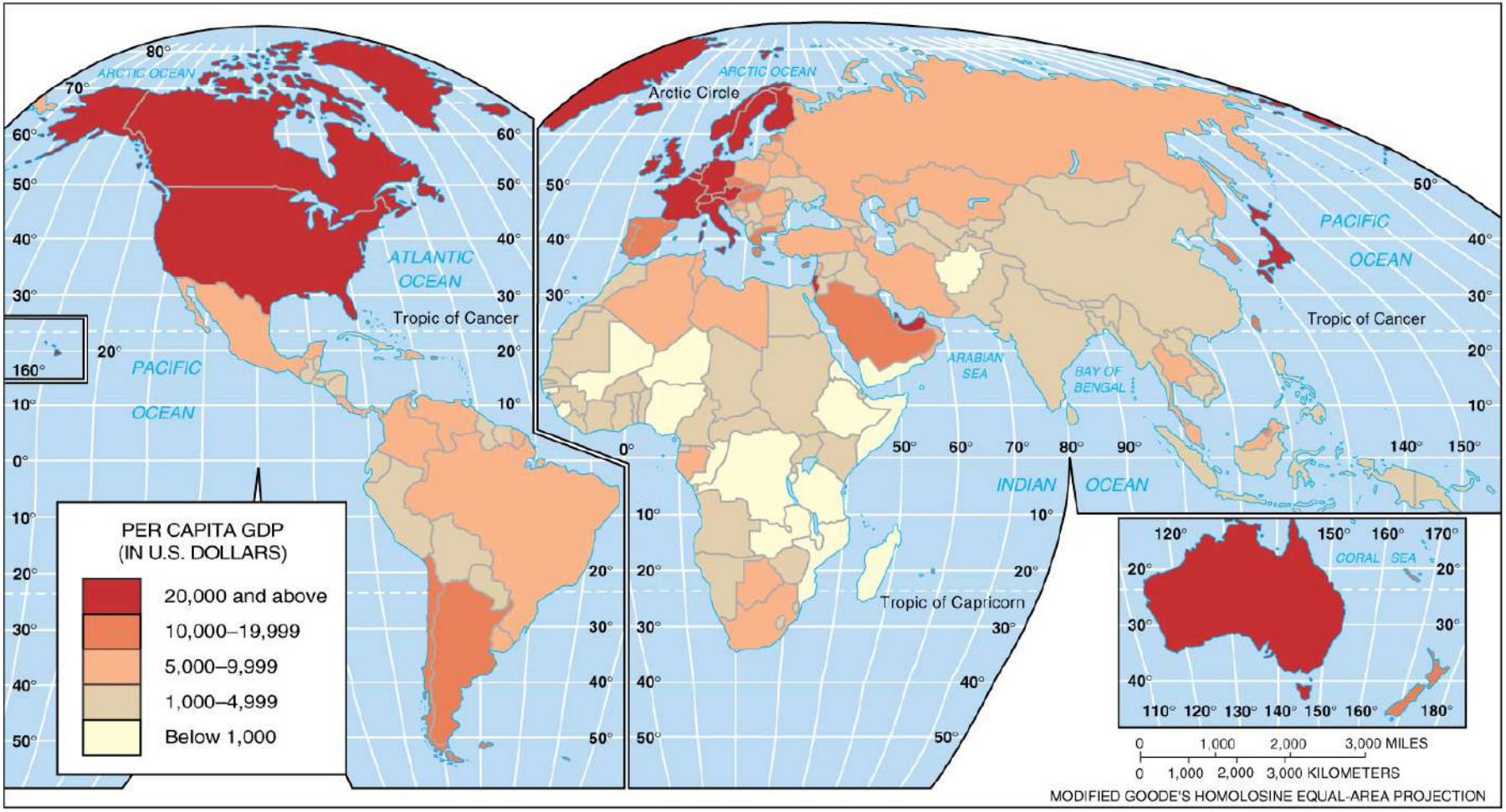
Growth in the Developing Countries

- Some Special Problems of the Developing Countries
  - Geography – poor climate for agriculture
  - Health – tropical diseases and epidemics
  - Governance – political instability and lack of property rights

From the Long Run to the Short Run

- Long run
  - Growth rates of actual and potential GDP match up
- Short run
  - Economic fluctuations in actual GDP above and below potential GDP
  - Recession = when actual GDP shrinks

Annual GDP per Capita



Annual gross domestic product (GDP) per capita averages over $20,000 in most developed countries but under $5,000 in most less developed countries.