AP MACRO ECONOMICS UNIT 5 : MR. LIPMAN

INFLATION, UNEMPLOYMENT, AND STABILIZATION POLICIES

DIFFERENT ECONOMIC THEORIES AND LONG RUN GROWTH

MODULES 30-31

Modules 35-40

MODULE 30

LONG RUN IMPLICATIONS OF FISCAL POLICY: DEFICITS AND THE PUBLIC DEBT

How does the Government Stabilizes the Economy?

The Government has two different toolboxes it can use:

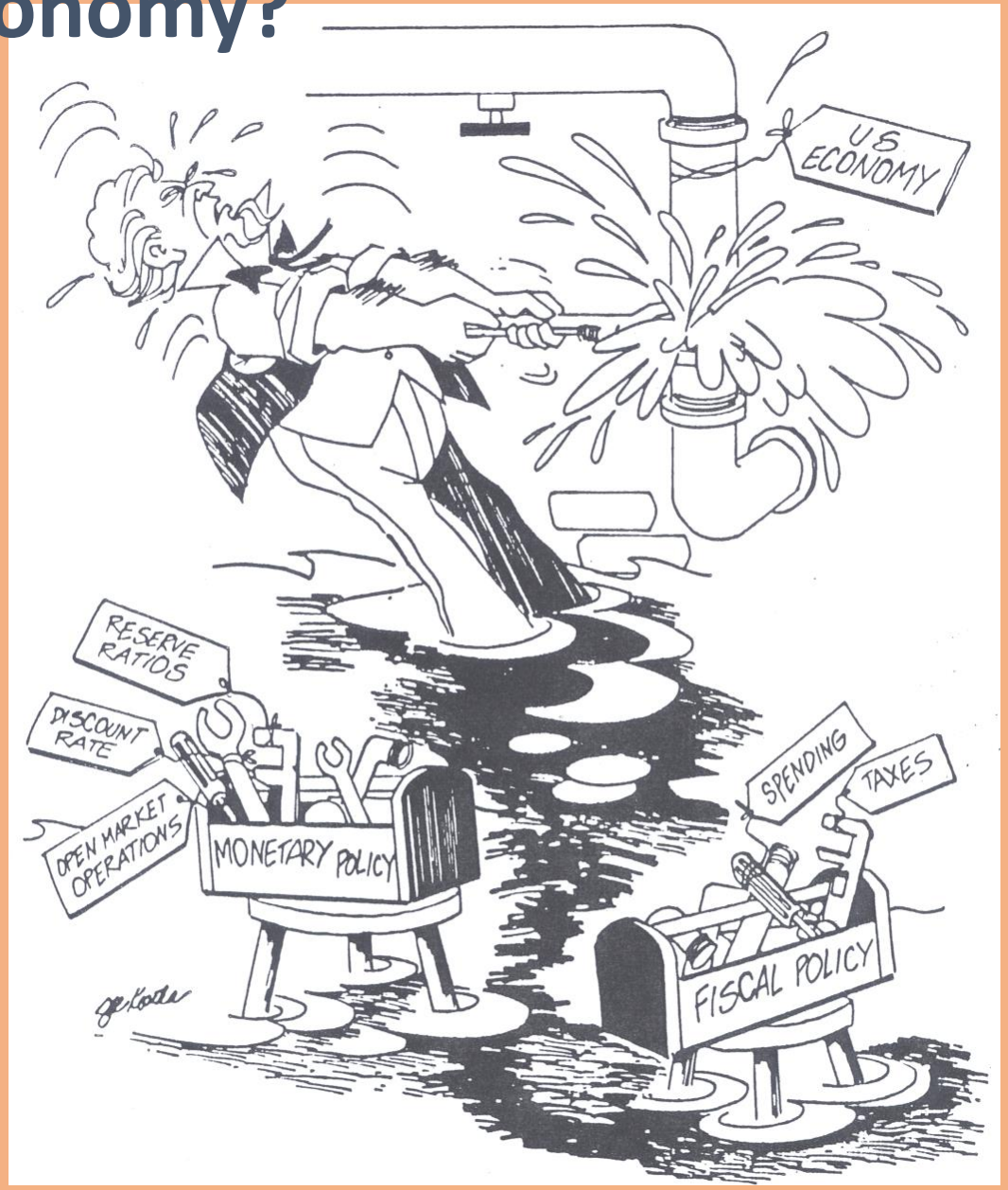
1. Fiscal Policy-

Actions by Congress to stabilize the economy.

OR

2. Monetary Policy-

Actions by the Federal Reserve Bank to stabilize the economy.



Module 30 focuses on Fiscal Policy.

- A **deficit** is the amount by which **annual** government spending exceeds tax revenues.

- The **public debt** is the total accumulation of all past yearly deficits and surpluses.

- A **surplus** is the amount by which annual tax revenues exceed government expenditures. ("we will probably never see another surplus in our lifetime")

  - In 2000, the budget surplus was $236.4 billion. By 2003, tax cuts, a recession, and new commitments for national defense and homeland security had turned the budget surpluses of 1998-2001 into a deficit of roughly $400 billion for fiscal year 2004.

  - In 2011, the budget deficit was over $1.5 Trillion
  - In 2014, the budget deficit was approx. $480 B.
  - In 2019 the budget deficit was $1 Trillion
  - In 2020 the budget deficit was $3.3 Trillion

Contractionary Fiscal Policy (The BRAKE)

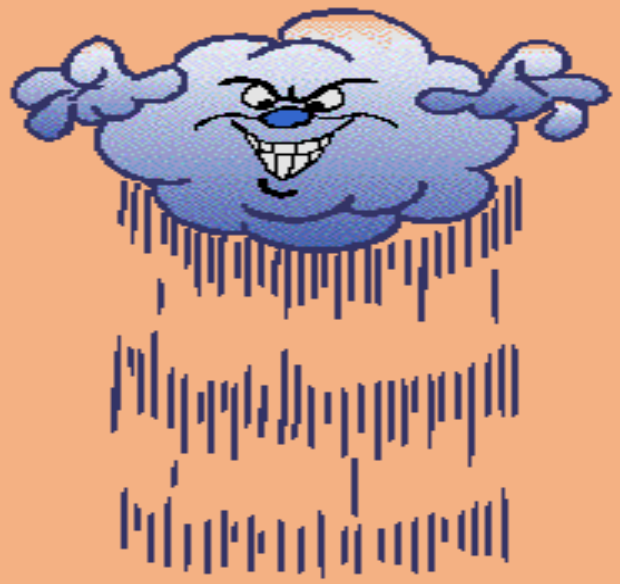
Laws that reduce inflation, decrease GDP

- **Decrease Government Spending**
- **Tax Increases**
- **Combinations of the Two**

Expansionary Fiscal Policy (The GAS)

Laws that reduce unemployment and increase GDP (Close a Recessionary Gap)

- **Increase Government Spending**
- **Decrease Taxes on consumers**
- **Combinations of the Two**

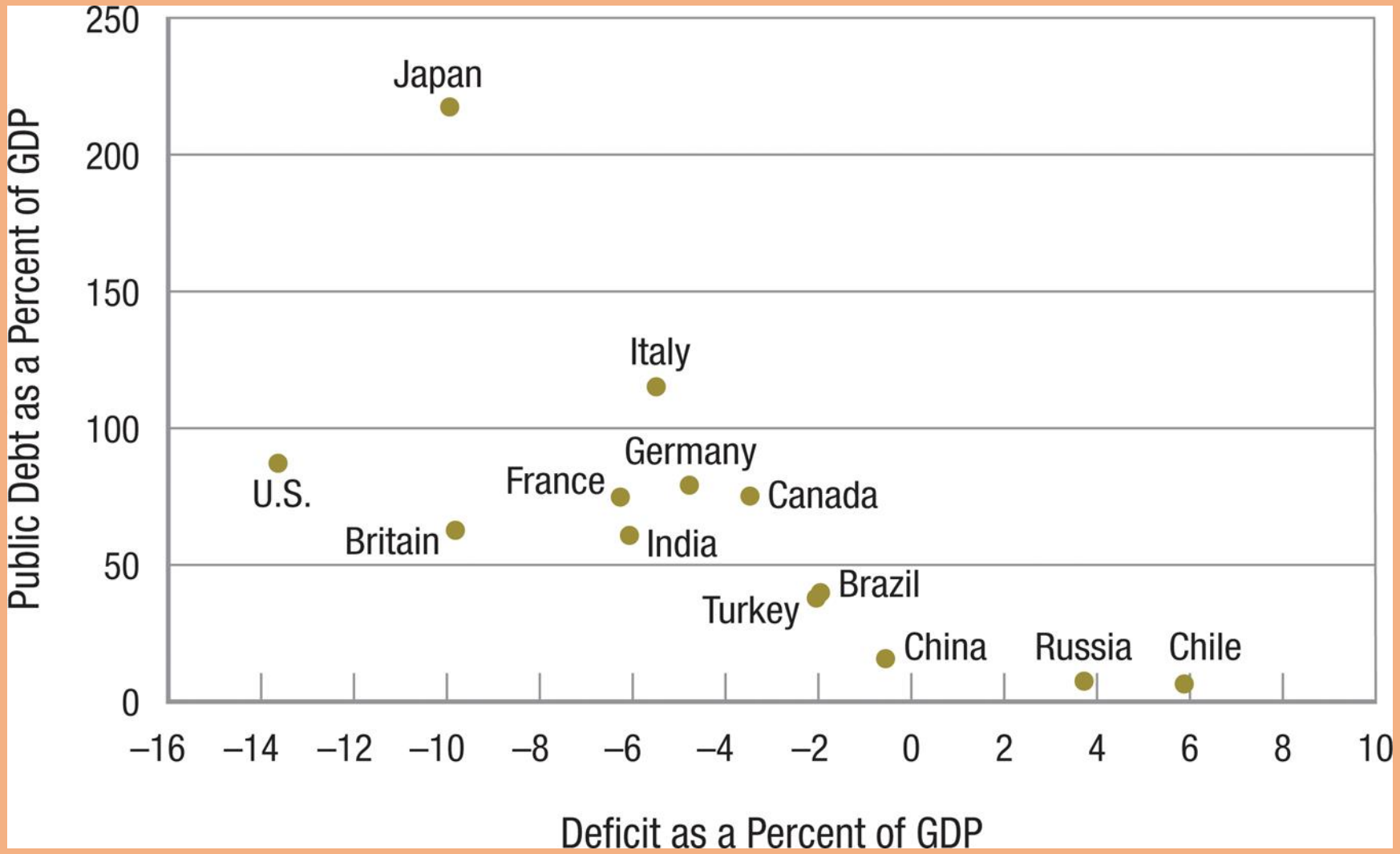


Problems With Fiscal Policy

Deficit Spending!!!!

- If the Government increases spending without increasing taxes they will increase the annual deficit and the national debt.

Most economists agree that budget deficits are a necessary evil because forcing a balanced budget would not allow Congress to stimulate the economy.


Public Debt as a Percent of GDP
250
200
150
100
50
0
Japan
Italy
Germany
France
U.S.
Canada
Britain
India
Brazil
Turkey
China
Russia
Chile
–16
–14
–12
–10
–8
–6
–4
–2
0
2
4
6
8
10
Deficit as a Percent of GDP

- Servicing the debt requires taxing the general public to pay interest to bondholders.
  - This means that money is taken from those across the income or wealth distribution and paid to bond holders, who tend to be from the upper class

If a nation defaults on its debt it will have a hard time convincing future investors to purchase its bonds.

Additional Problems with Fiscal Policy

1. **Problems of Timing**
   - Recognition Lag- Congress must react to economic indicators before it's too late
   - Administrative Lag- Congress takes time to pass legislation
   - Operational Lag- Spending/planning takes time to organize and execute (changing taxing is quicker)
2. **Politically Motivated Policies**
   - Politicians may use economically inappropriate policies to get reelected.
   - Ex: A senator promises more public works programs when there is already an inflationary gap.

3. Crowding-Out Effect

- **Government spending might cause unintended effects that weaken the impact of the policy.**

  Example:
  - **We have a recessionary gap**
  - **Government creates new public library. (AD increases)**
  - **But consumers spend less on books (AD decreases)**

  Another Example:
  - **The government increases spending but must borrow the money (AD increases)**
  - **This increases the price for money (the interest rate).**
  - **Interest rates rise so Investment falls. (AD decrease)**

The government "crowds out" consumers and/or investors

4. Net Export Effect

International trade reduces the effectiveness of fiscal policies.

Example:

- **We have a recessionary gap so the government spends to increase AD.**
- **The increase in AD causes an increase in price level and interest rates.**
- **U.S. goods are now more expensive and the US dollar appreciates…**
- **Foreign countries buy less. (Exports fall)**
- **Net Exports (Exports-Imports) falls, decreasing AD.**

MODULE 31

MONETARY POLICY AND THE INTERST RATE

Interest-Rate Effect

- When price level increases, lenders need to charge higher interest rates to get a REAL return on their loans.
- Higher interest rates discourage consumer spending and business investment. WHY?
  - An increase in prices leads to an increase in the interest rate from so you are less likely to take out loans to improve your business.

The FED adjusts the money supply by changing any one of the following:

1. **Reserve Requirements (Ratios)**
2. **Discount Rate**
3. **Open Market Operations**
    - **Buying and selling Bonds**

The FED is now chaired by Jeremey Powell

- **Open Market Operations is when the FED buys or sells government bonds (securities).**
- **This is the most important and widely used monetary policy**

To increase the Money supply, the FED should

_____BUY_____ government securities.

To decrease the Money supply, the FED should

_____SELL_____ government securities.

How are you going to remember?

Buy-BIG- Buying bonds increases money supply

Sell-SMALL- Selling bonds decreases money supply

- When the Fed buys bonds, it adds to bank reserves. This is called **easy money, expansionary monetary policy,** or **quantitative easing**.
  - It is designed to increase excess reserves and the money supply, and ultimately reduce interest rates to stimulate the economy.

- The opposite of an expansionary policy is a **tight money, restrictive,** or **contractionary monetary policy.**
  - Tight money policies are designed to shrink income and employment, usually in the interest of fighting inflation. The Fed brings about tight monetary policy by selling bonds, thereby pulling reserves from the financial system.

- Monetary authorities around the world have tried an alternative to monetary rules by using the approach of **inflation targeting**.
- This sets targets for the inflation rate, usually around 2% per year. In January 2012, the Fed adopted this position as well. It has since backed away from it because it anticipates low inflation for a while.

- Professor John Taylor of Stanford University found that the Fed tended to follow a general rule that has become known as the **Taylor rule** for federal funds targeting:

  federal funds target rate =

1 + (1.5 x inflation rate) + (0.5 x output gap)

{Output gap is current GDP – Potential GDP}

Problem with the rule is that it has a “lag” and adjusts for past inflation but not future inflation

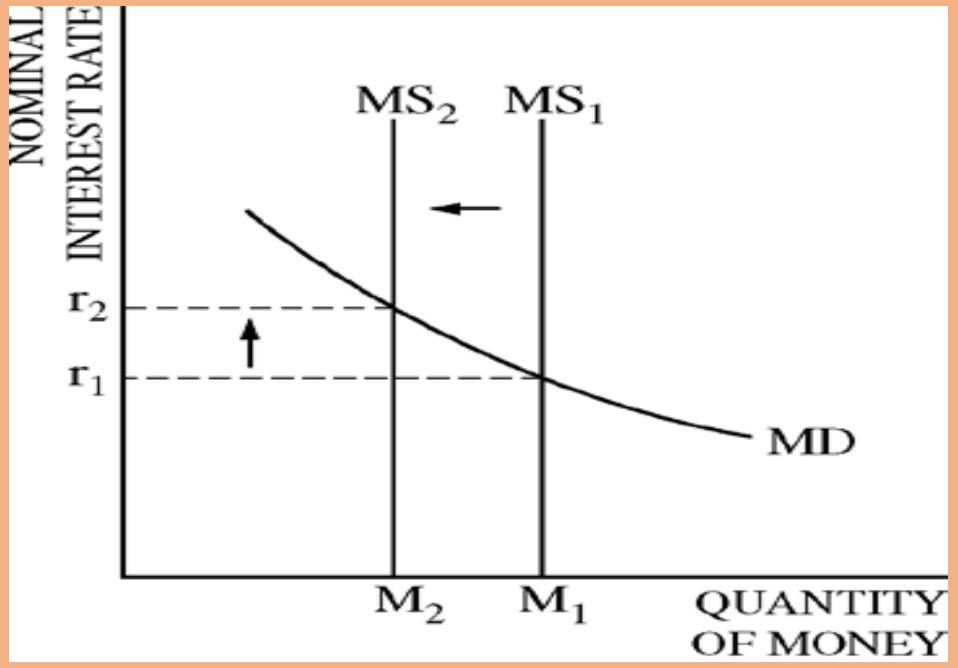
FRQ 2010 Form B

- 2. The central bank of the country of Lipmanland sells bonds on the open market.
- (a) Assume that banks in Lipmanland have no excess reserves. What is the effect of the central bank's action on the amount of customer loans that banks in Lipmanland can make?
- (b) Using a correctly labeled graph of the money market, show the effect of the central bank's action on the nominal interest rate in Lipmanland.
- (c) What is the effect of the central bank's action on each of the following in Lipmanland?
  - (i) Price level
  - (ii) Real interest rate. Explain.

FRQ 2010 Form B- Ruberic

7 points (1 + 2 + 3 + 1)

- (a) 1 point: • One point is earned for stating that bank loans will decrease.



- (b) 2 points:
- • One point is earned for a correctly labeled graph of the money market.
- • One point is earned for showing a leftward shift of the MS curve and an increase in the nominal interest rate. (See graph on previous slide)

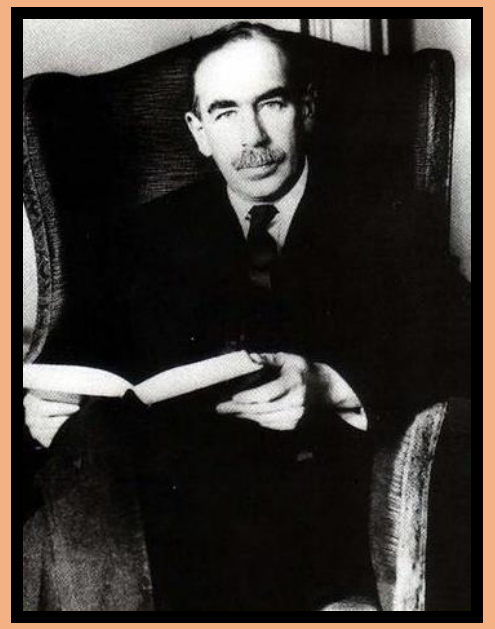
- (c) 3 points:
- • One point is earned for stating that the price level will fall.
- • One point is earned for stating that the real interest rate will rise.
- • One point is earned for the explanation that with an increase in the nominal interest rate and a decrease in the price level, the real interest rate increases.

MODULES 35 & 36

HISTORY AND ALTERNATIVE VIEWS OF MACROECONOMICS

Adam Smith
1723-1790

Classical vs. Keynesian



John Maynard Keynes
1883-1946

Prior to the Great Depression

- The prevailing thought of economists before the 1930s was that a *laissez faire* approach to the economy was the best approach for government.
  - Competitive markets for labor, products, and financial assets would lead to flexible wages, prices, and interest rates that would keep the economy humming along near full employment, with only a minor recession here and there.

{the invisible hand theory}

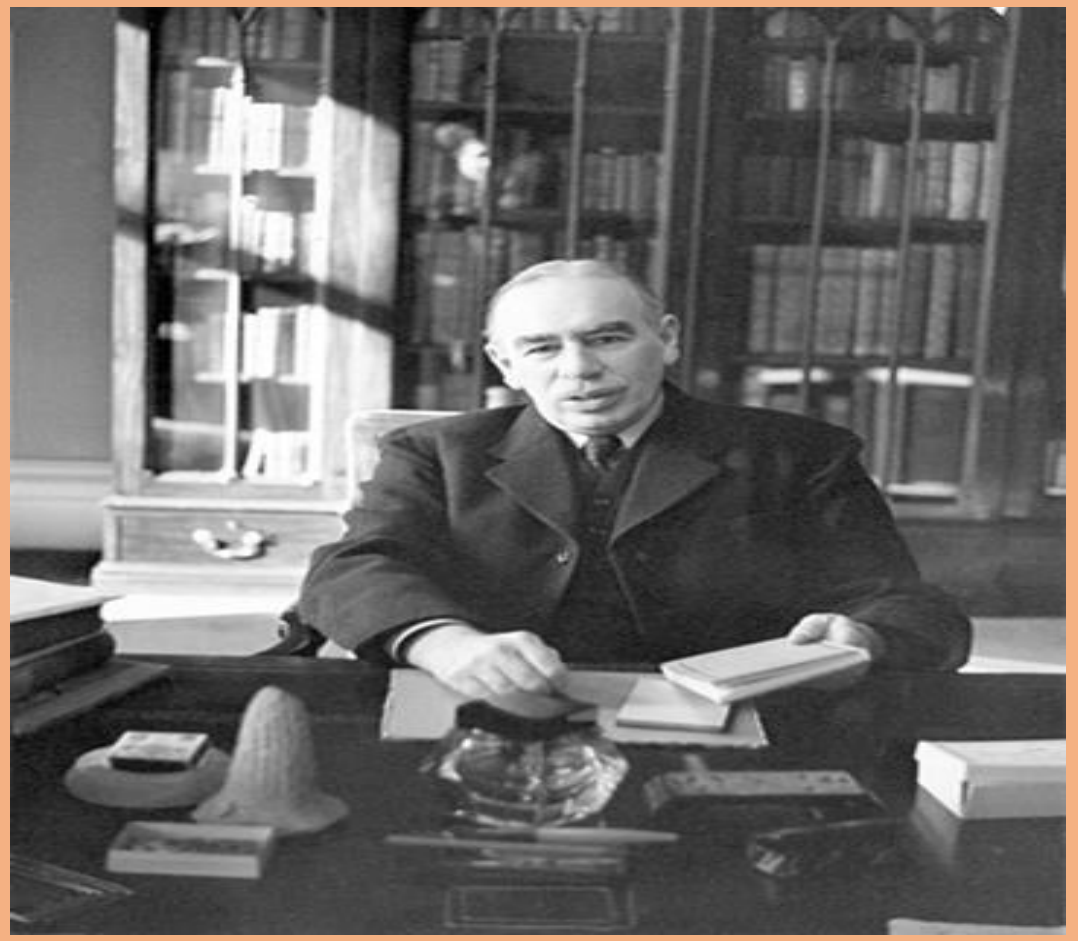
- Before the Depression, government spending was roughly 10% of national output.

- Today, that figure has tripled to 30%.

- Thus representing the growing size of government

- Most of the changes in post-Depression economic thinking can be traced back to one book, *The General Theory of Employment, Interest and Money* by John Maynard Keynes, published in 1936.
    - In this book, Keynes focused his attention on the economy as a whole and on aggregate spending.
    - He emphasized income, and not interest rates, were the key to growing economy

John Maynard Keynes



- Keynes observed that as disposable income increases, consumption will increase, though not as fast as income. This approach to analyzing savings differs sharply from the Classical approach, which assumed the interest rate to be the principal determinant of saving.

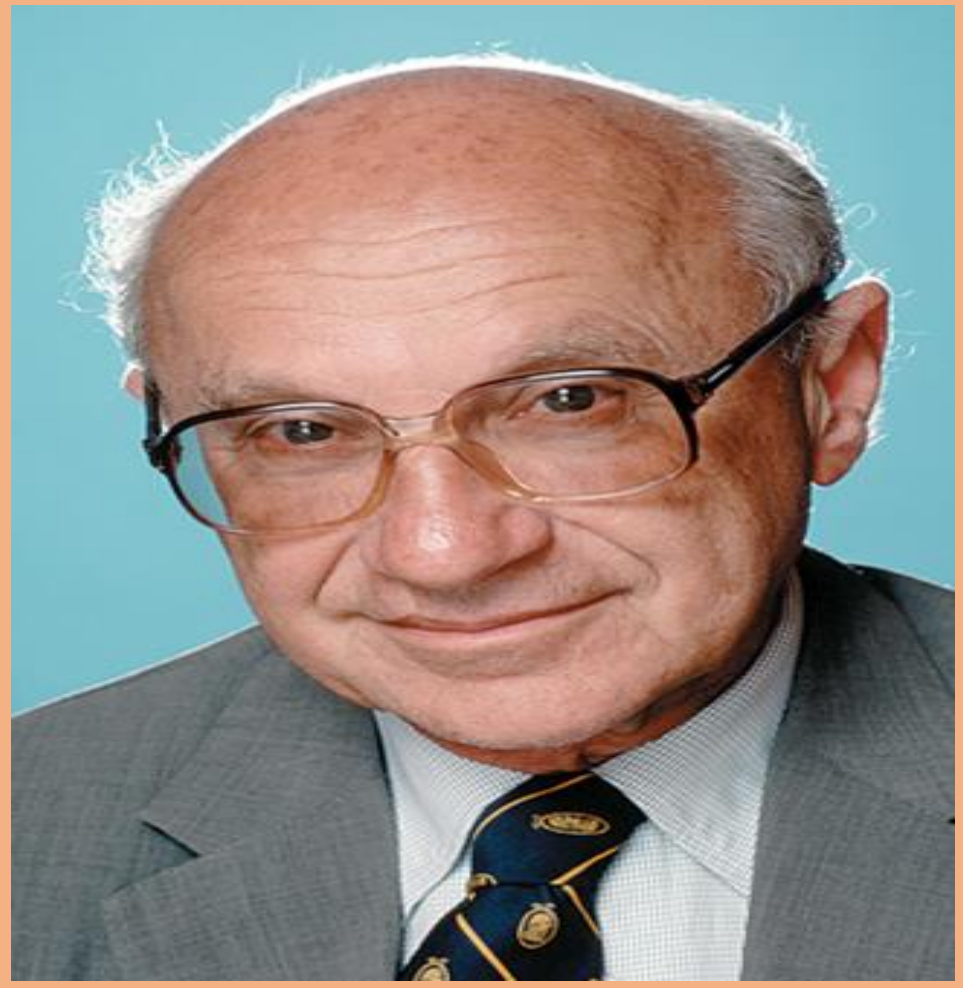
- Remember that the marginal propensity to consume is the change in consumption associated with a given change in income. The marginal propensity to save is the change in saving associated with a given change in income.

Milton Friedman (1980s)

- Brought about a change in thinking by stressing that Monetary Policy and Monetary Supply needed to play a key role in managing the nations economy.

- This helped to increase importance of FED and decrease importance of fiscal policy

Milton Friedman



Velocity of Money

- This is the ratio of nominal GDP to the Money Supply. Essentially it is the number of times the average dollar bill is spent in a year.

$$M \times V = P \times Y$$

- M= Money Supply
- V = Velocity
- P = Aggregate Price Level
- Y = Real GDP

Sample Question

- The school of economics that dominated thinking prior to the Great Depression was the:
  - A) business cycle theorists
  - B) classical school
  - C) post-Keynesian school
  - D) Marxists
  - E) monetarists

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Sample Question

- According to Keynesian Theory:
  - A) the long-run and short-run aggregate supply curves are identical
  - B) a decrease in aggregate demand leads to decreases in output and prices
  - C) a decrease in aggregate demand will decrease prices, but not output
  - D) the short run is relatively unimportant
  - E) an economic recession will self-correct without policy intervention

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Sample Question

- Keynesian economics emphasizes _____shifts in aggregate _____.
  A) long-run; demand
  B) long-run; supply
  C) short-run; demand
  D) short-run; supply
  E) long-run; supply and demand

Sample Question

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  - A) long-run; demand
  - B) long-run; supply
  - C) short-run; demand
  - D) short-run; supply
  - E) long-run; supply and demand

Module 37

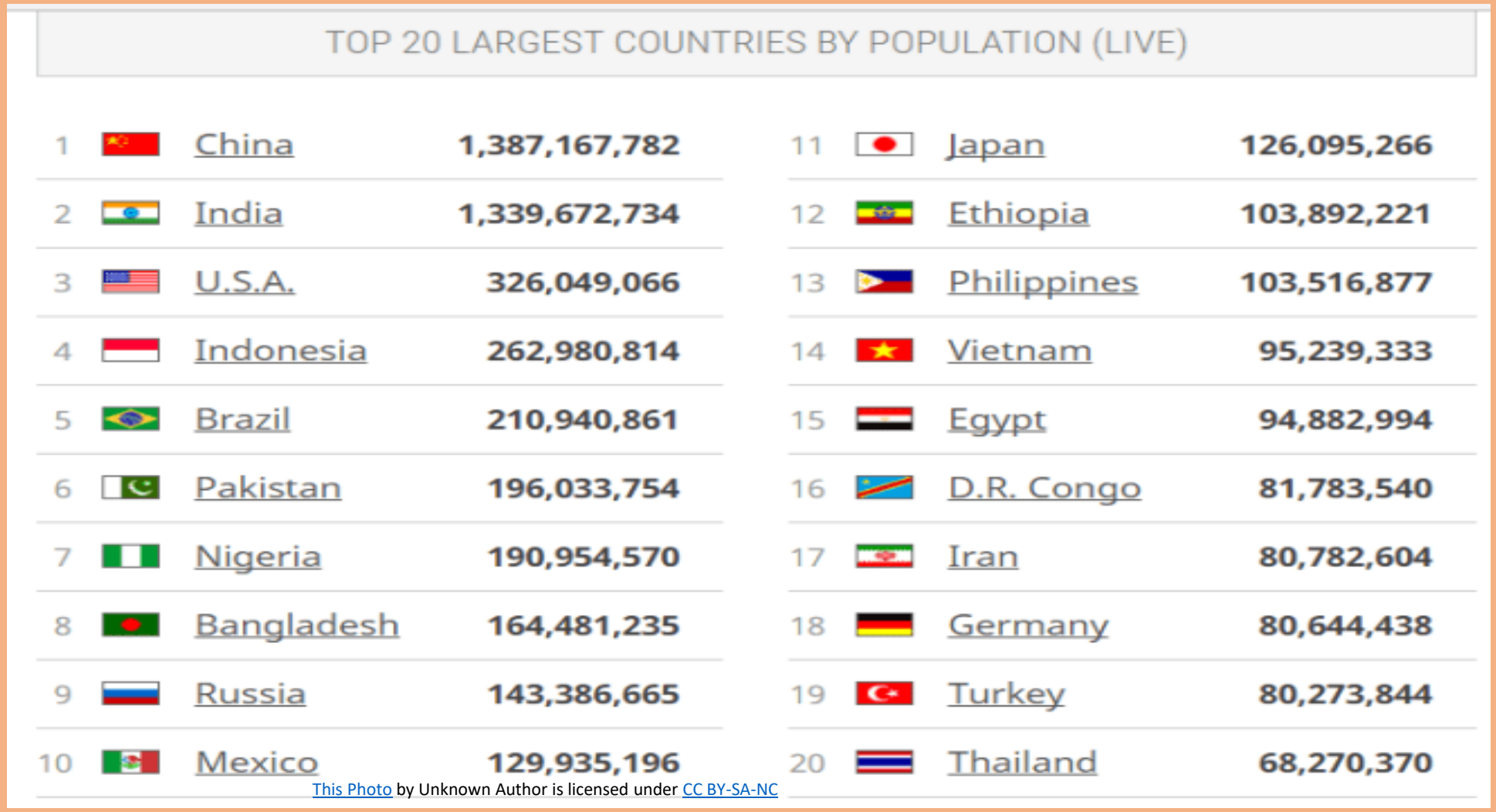
Standard of living (or quality of life) can be measured, in part, by how well the economy is doing…

But it needs to be adjusted to reflect the size of the nation's population.

- **Real GDP per capita is** real GDP divided by the total population. It identifies on average how many products each person makes.

Real GDP per capita is the best measure of a nation's standard of living.

Most Populated Countries in the World



TOP 20 LARGEST COUNTRIES BY POPULATION (LIVE)

1		China	1,387,167,782	11		Japan	126,095,266
2		India	1,339,672,734	12		Ethiopia	103,892,221
3		U.S.A.	326,049,066	13		Philippines	103,516,877
4		Indonesia	262,980,814	14		Vietnam	95,239,333
5		Brazil	210,940,861	15		Egypt	94,882,994
6		Pakistan	196,033,754	16		D.R. Congo	81,783,540
7		Nigeria	190,954,570	17		Iran	80,782,604
8		Bangladesh	164,481,235	18		Germany	80,644,438
9		Russia	143,386,665	19		Turkey	80,273,844
10		Mexico	129,935,196	20		Thailand	68,270,370

GDP Per Capita for Top 10 Major Nations

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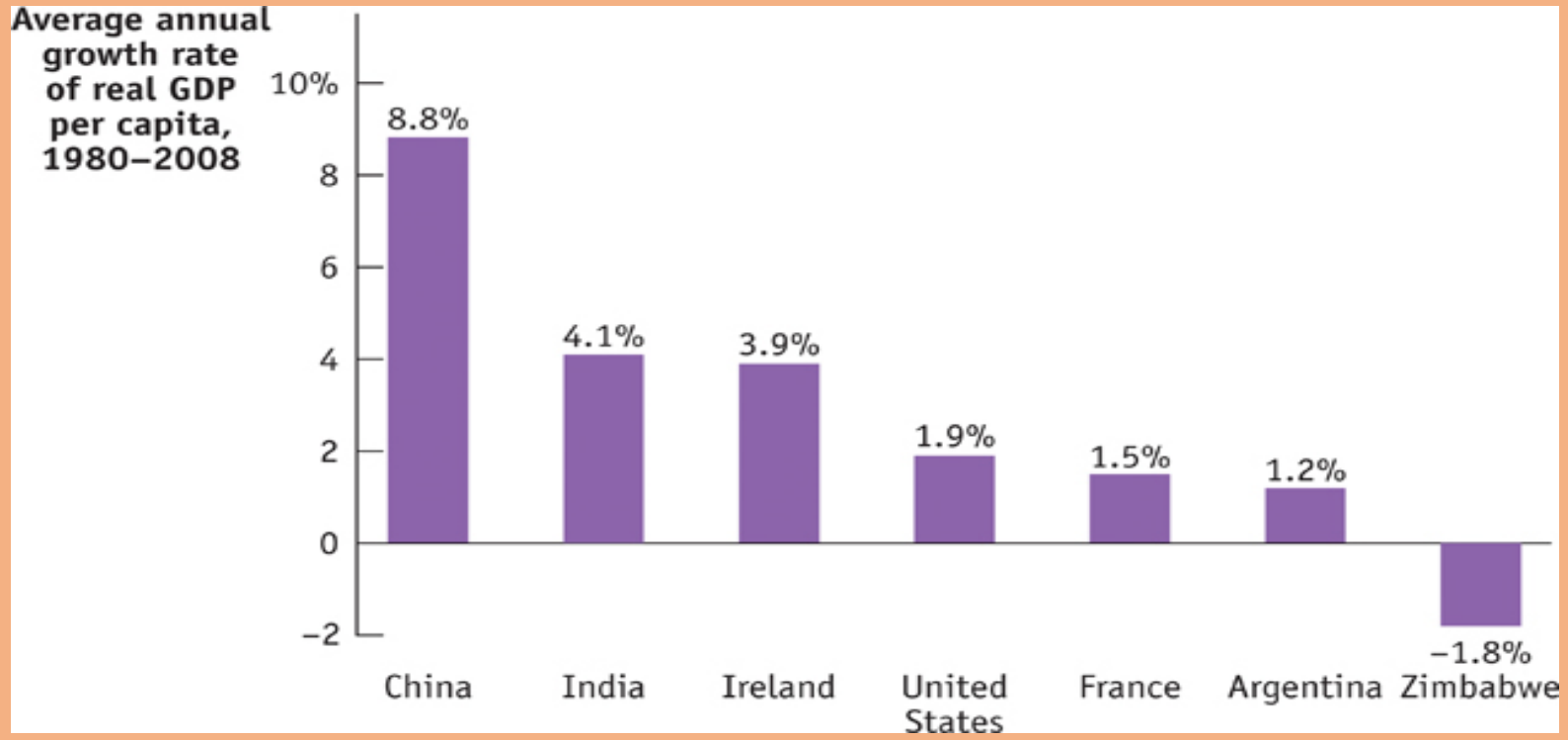
Growth Rates

Rule of 70



The Sources of Long-Run Growth

Physical Capital
(Machinery)

Human Capital
(Education)

Technology
(new methods of production)

Sample Problem

- Real per capita GDP is:
  - A) real GDP divided by the population
  - B) real GDP divided by the amount of capital available in the economy
  - C) not a good useful measure of human welfare
  - D) the depth of the ocean floor for sea monsters
  - E) measures the value of the nation’s financial markets

Sample Problem

- Real per capita GDP is:
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Sample Problem

- If a country has a population of 1,000, an area of 100 square miles, and a GDP of $5,000,000, then its GDP per capita is:
  - A) $500
  - B) $5,000
  - C) $50,000
  - D) 5,000,000
  - E) $50

Sample Problem

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Sample Problem

- The rule of 70 indicates that a 6% annual increase in the potential level of real GDP would lead to the potential output doubling in about _____years.

  A) 6

  B) 12

  C) 24

  D) 30

  E) 35

Sample Problem

- The rule of 70 indicates that a 6% annual increase in the potential level of real GDP would lead to the potential output doubling in about _____years.

  A) 6

  B) 12

  C) 24

  D) 30

  E) 35

Sample Problem

- If real GDP doubles in 35 years, its average annual growth rate is approximately_____?
  - A) 1%
  - B) 2%
  - C) 3%
  - D) 4%
  - E) 7%

Sample Problem

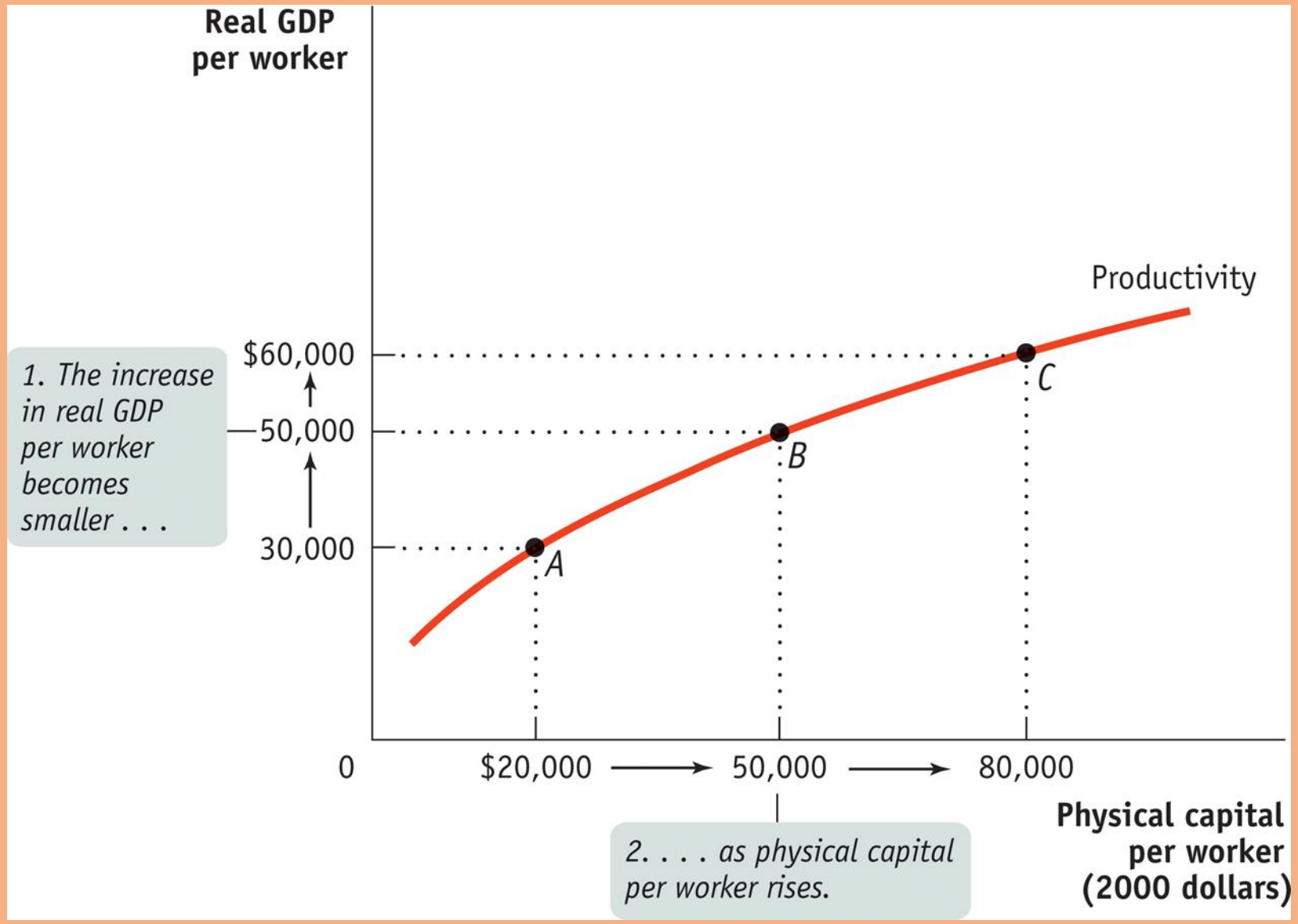
- If real GDP doubles in 35 years, its average annual growth rate is approximately_____?
  - A) 1%
  - B) 2%
  - C) 3%
  - D) 4%
  - E) 7%

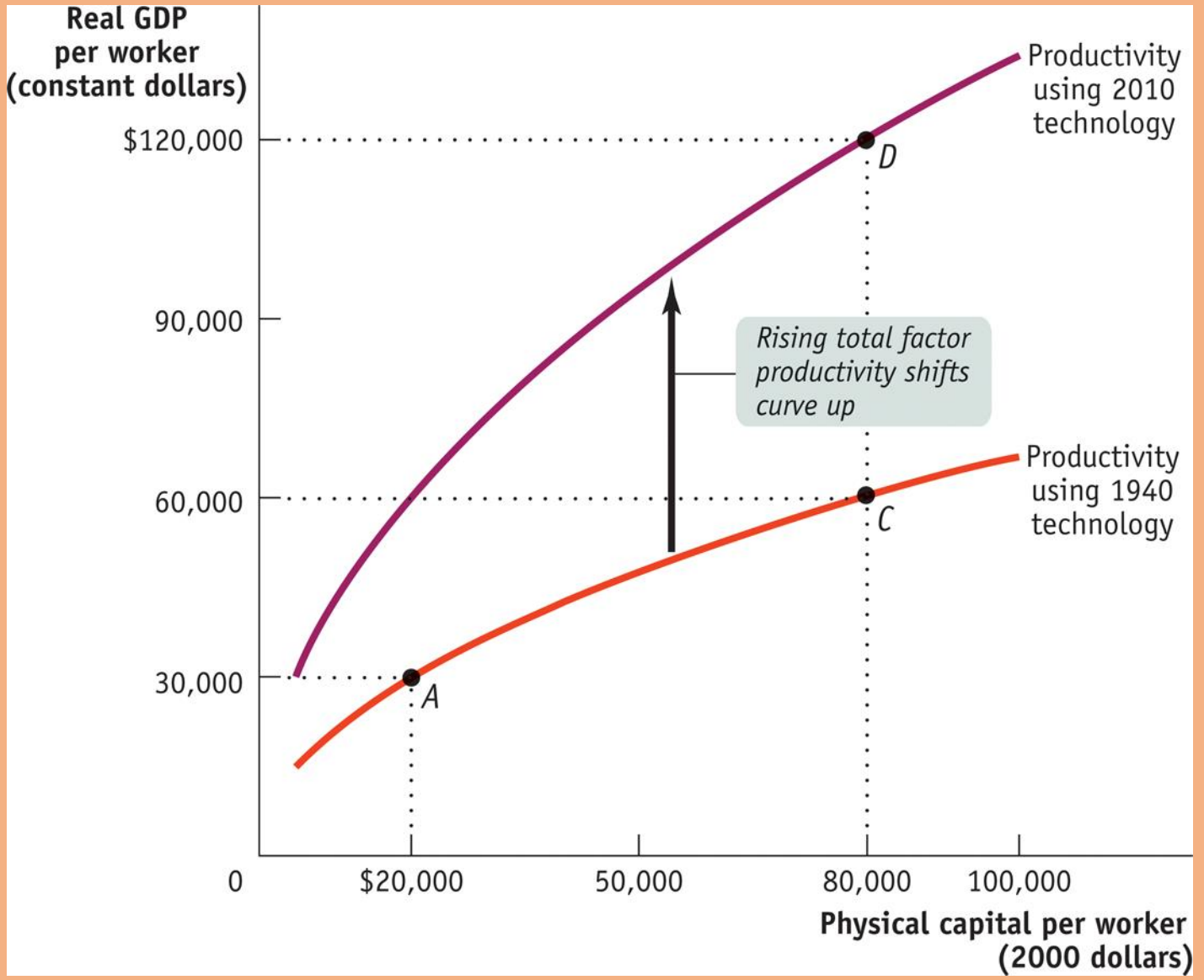
Module 38

PRODUCTIVITY AND GROWTH

Accounting for Growth: The Aggregate Production Function

- Aggregate Production Function (measuring the growth of a nation’s productivity)
- Diminishing Returns to Physical Capital (the more physical capital is provided the less the gain. Example of this is handwriting to typing to computer)
- Growth Accounting
- Total Factor Productivity


Real GDP per worker
Productivity
$60,000
50,000
30,000
A
B
C
1. The increase in real GDP per worker becomes smaller . . .
0
$20,000
50,000
80,000
2. . . . as physical capital per worker rises.
Physical capital per worker (2000 dollars)


Real GDP per worker (constant dollars)
$120,000
90,000
60,000
30,000
0
$20,000
50,000
80,000
100,000
Physical capital per worker (2000 dollars)
Productivity using 2010 technology
Productivity using 1940 technology
Rising total factor productivity shifts curve up
A
C
D

What About Natural Resources?

- Other things equal, more natural resources leads to higher GDP per capita

- Other things are often NOT equal (Political / Legal instability)

- Malthus (population argument was wrong)

Sample Problem

- In the long run an increase in saving will generally:
  - A) reduce the rate of economic growth
  - B) leave the rate of economic growth unchanged
  - C) increase the rate of economic growth
  - D) increase consumption simultaneously
  - E) decrease the standard of living

Sample Problem

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Sample Problem

- Which of the following will NOT increase the productivity of labor?
  - A) technological improvements
  - B) an increase in the capital stock
  - C) improvements in education
  - D) an increase in the size of the labor force
  - E) a lower literacy rate

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  - A) technological improvements
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  - D) an increase in the size of the labor force
  - E) a lower literacy rate

Sample Problem

- Physical capital would include:
  - A) the education or knowledge a worker has in his or her physical being
  - B) the tools a worker has to work with
  - C) the money available for the worker to use
  - D) the stocks and bonds in an individual's portfolio
  - E) the natural resources a worker has to work with

Sample Problem

- Physical capital would include:
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  - D) the stocks and bonds in an individual's portfolio
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Module 39: Economic Growth Policy

- Investment Spending leads to an increase in physical capital
- Investment Spending comes from domestic savings or inflows of foreign capital
- Business R&D is a key to increasing physical capital

- The Role of Government in Promoting Economic Growth
  - Governments and Physical Capital
    - infrastructure
  - Governments and Human Capital
  - Governments and Technology
  - Political Stability, Property Rights and Excessive Intervention

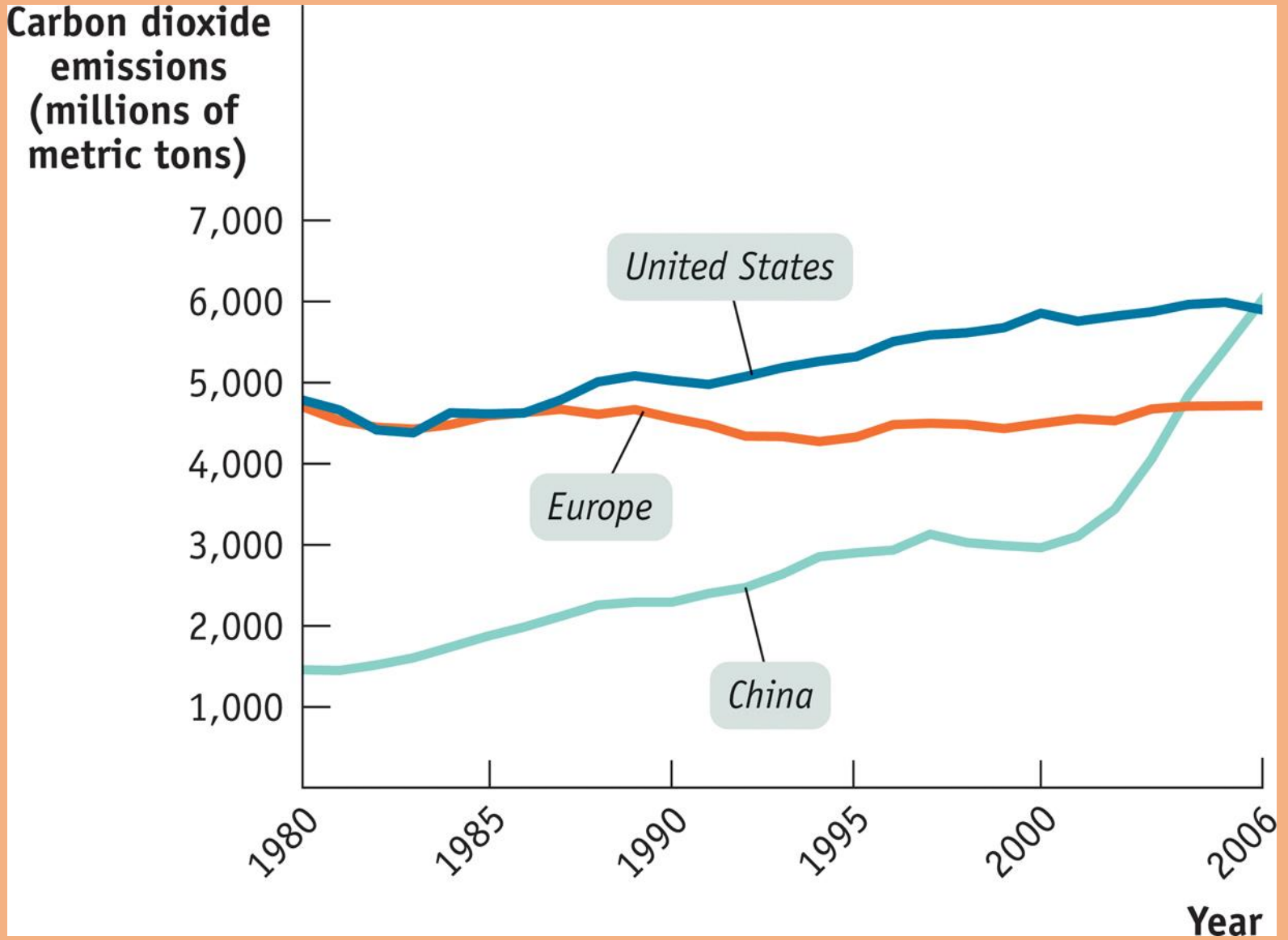
table **39.1**

Human Capital in Latin America and East Asia

	Latin America		East Asia	
	1960	2000	1960	2000
Percentage of population with no schooling	37.9%	14.6%	52.5%	19.8%
Percentage of population with high school or above	5.9	19.5	4.4	26.5

Source: Barro, Robert J. and Lee, Jong-Wha (2001) "International Data on Educational Attainment: Updates and Implications," *Oxford Economic Papers* vol. 53(3), p. 541–563.

AN EXAMPLE OF HOW INVESTMENT IN HUMAN CAPITAL CAN LEAD TO INCREASED GROWTH AND A HIGHER GDP PER CAPITA



THE ISSUE OF GROWTH AND ENVIORNMENTAL DAMAGE IS A WORLD-WIDE ISSUE AND NOT A UNITED STATES ISSUE ALONE

ENVIORNMENTAL CONCERNS

- Pollution is a *negative externality* because it allows firms to impose a cost on society without having to pay compensation

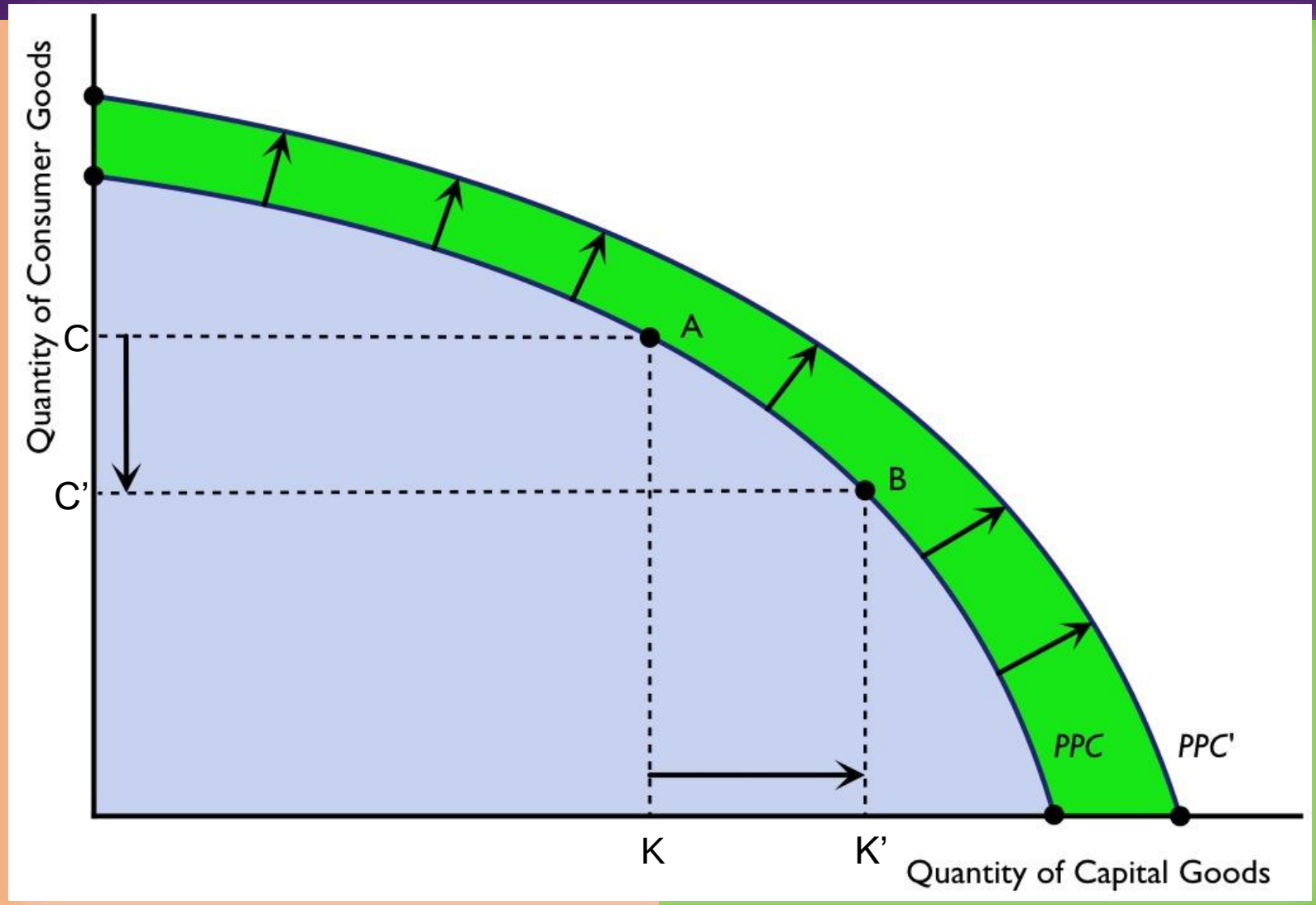
- Many have called for “cap and trade” policies which impose costs and limits/purchases/trades on firms who are engaged in pollution type industries.

MODULE 40

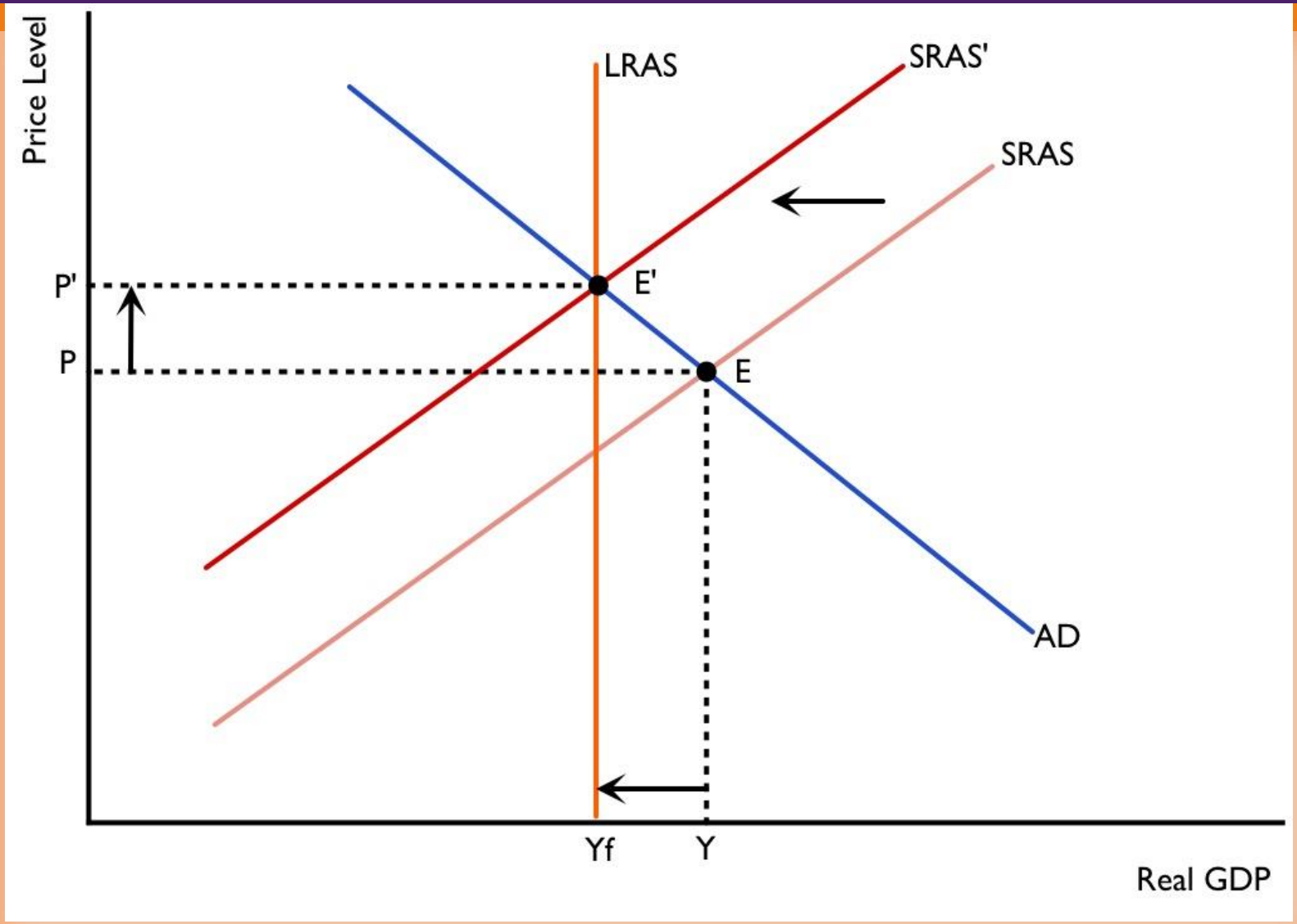
- LONG-RUN ECONOMIC GROWTH IS BASED UPON THE SUSTAINED RISE IN THE PRODUCTION OF GOODS AND SERVICES

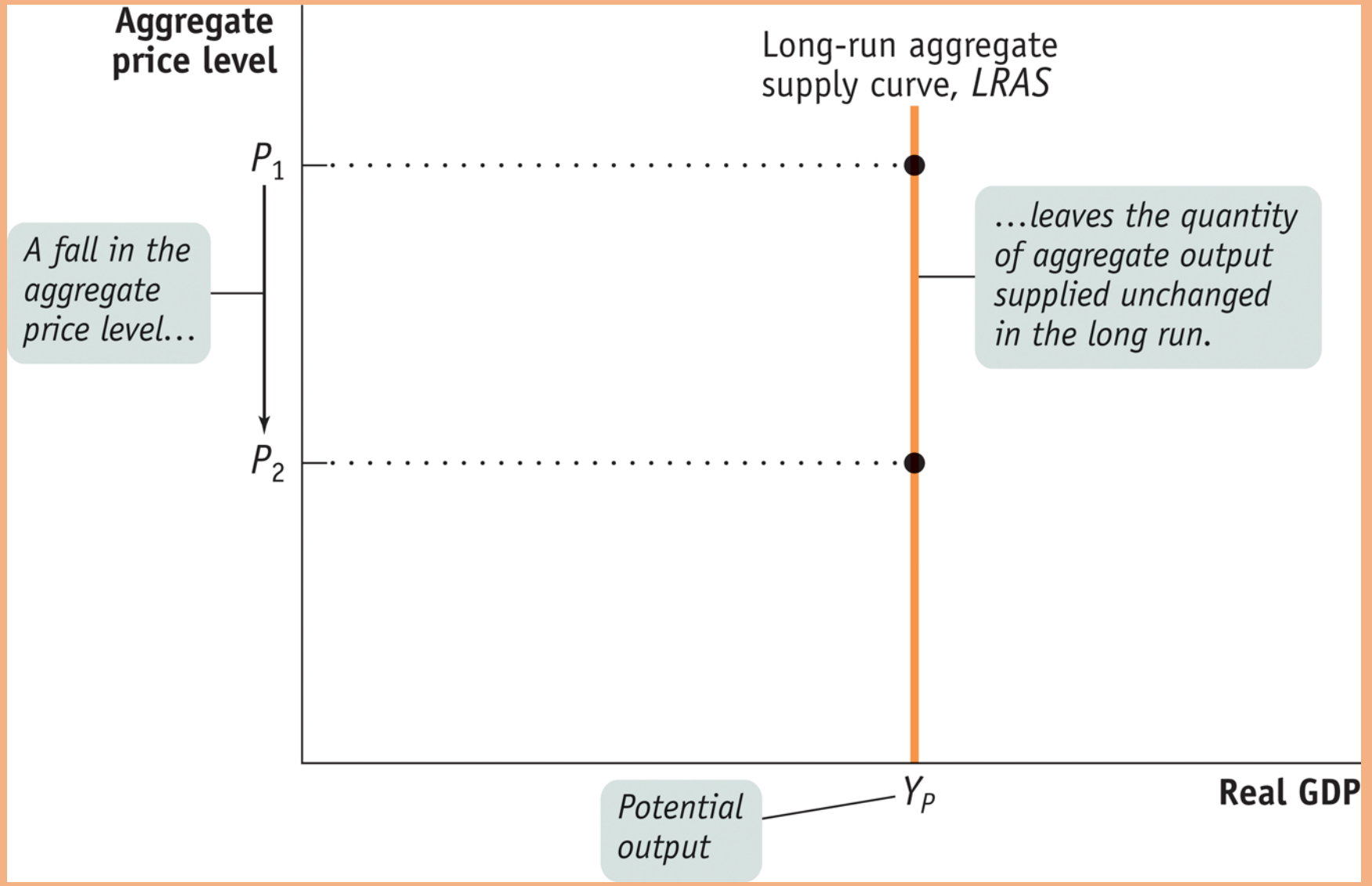
- SHORT-RUN “UPS” AND “DOWNS” ARE THE RESULT OF THE BUSINESS CYCLE

Long-run Economic Growth and the Production Possibilities Curve

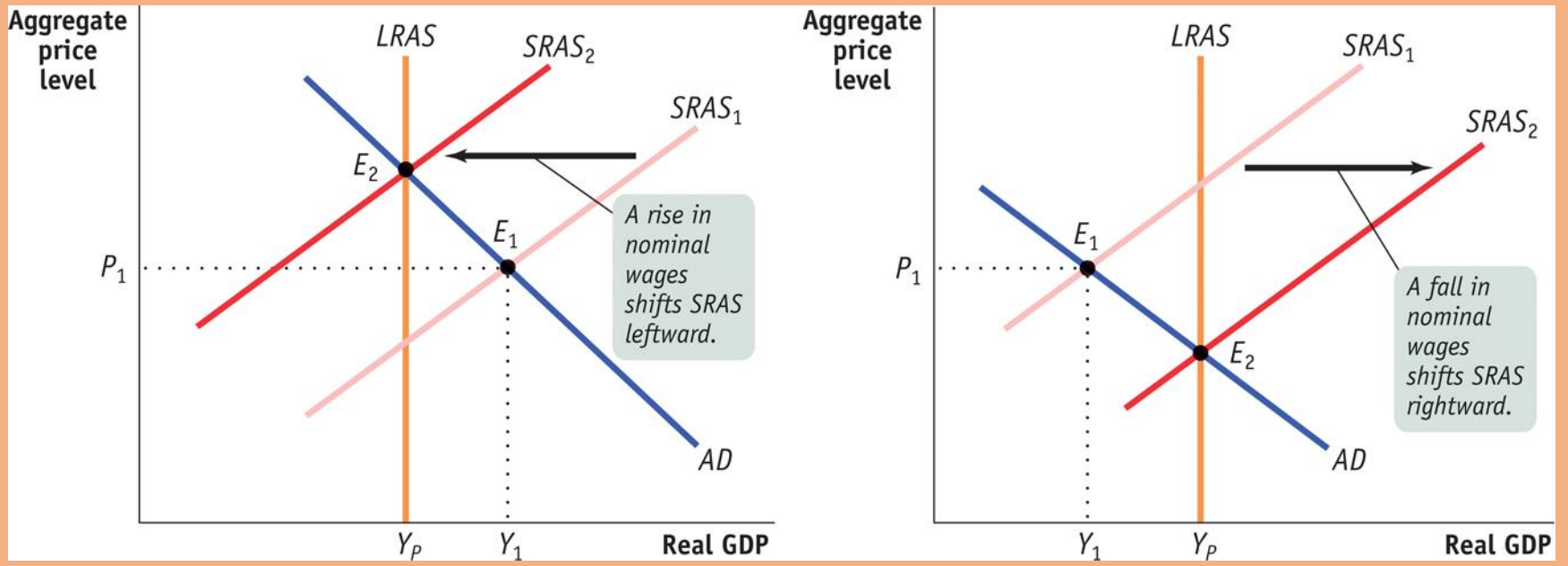


You must distinguish between long-run growth and short-run business cycle (SRAS)





The Long-run Aggregate Supply Curve



From the Short Run to the Long Run**: Notice the impact of wages on SRAS since wages are an input**

GDP GROWTH & SOCIAL MOBILITY

- The one issue America still faces concerning GDP growth is whether it can or does lead to an increase in social mobility.

- Many argue that it does (usually the political argument of Republicans) while others argue that the capitalist system itself is inherently unfair and thus increased GDP will not, by itself, increase social mobility (usually the political argument of Democrats).