Chapter 32

How Economies Grow and Develop

Principles of Economics In Context (Goodwin et al)

Chapter Overview

This chapter presents material on economic growth, such as the theory behind it, how it is calculated, its history in the world, and its relationship to economic development. You will be able to compare statistical information on different country experiences in trying to determine whether the world's poor countries are, over time, "catching up" to the rich countries. You will also see what are the main institutional factors that economists consider important in achieving economic growth. Finally, you will see that the chapter contains individual sections on poverty, inequality, and human development; each will allow you to independently examine the subject matter, but also consider its relationship to economic growth.

Chapter Objectives

After reading and reviewing this chapter, you should be able to:

1. Explain the difference between "economic growth" and "economic development."
2. Understand the relevance to economics—and to economic growth in particular—of the Industrial Revolution.
3. Describe general patterns of economic growth over time and across different regions and countries.
4. Discuss the controversy concerning whether global inequality is increasing or decreasing.
5. List various factors that play a role in development.
6. Explain how poverty, economic growth, and human development are related.

Key Terms

factors of production
Industrial Revolution
convergence
labor intensive
infant industry
multilateral development assistance
laissez-faire capitalism
administrative socialism
poverty line
human development
Kuznets curve hypothesis
total factor productivity
virtuous cycles (in development)
capital intensive
industrial policy
bilateral development assistance
terms of trade
administrative capitalism
market socialism
capabilities
Millennium Development Goals (MDGs)

Active Review

Fill in the Blank

1. When an economy has experienced increases in aggregate levels of production and income, and its real GDP has risen by some percentage from one year to the next, it has experienced economic ____________________.

2. When an economy has moved people from a situation of poverty to material plenty through investments in productive capacity and changes in the organization of work, it has experienced economic ____________________.

3. Labor, capital, and natural resources are just three __________________, key inputs into the production function.

4. A measure of the productivity of all factors of production is ________________ productivity.

5. The process of social and economic change that began in 18th century England and resulted in a huge increase in output per worker is called the ___________________.

6. Self-reinforcing patterns of high savings, investment, productivity growth, and economic expansion, such as experienced by Japan and other "Asian tigers," are called ________________________.

7. The idea that poor countries are on a path to "catch up" with the rich countries due to underlying economic forces, is called ______________________.

8. Aid or loans given by the government of a rich country like the U.S. to a poor country like Ethiopia is called _________________development assistance.

9. Aid or loans given by international institutions such as the World Bank, IMF, or United Nations Development Program (UNDP) is called ______________ development assistance.

10. Suppose a U.S. company builds a factory in China to produce electronic goods. When such a private company acquires or creates assets for their own business operations in a foreign country, it is engaging in __________________ investment.

True or False

11. Economic growth will always lead to inflation.

12. A major cause of Japan's extraordinary growth in the period of 1950-1980 was its high savings rate, which reached as high as 20 percent of household income in the mid 1970s.

13. Additions to a nation's capital stock will automatically lead to economic growth.

14. History shows that having plentiful resources of arable land, energy, and/or minerals is a requirement for a country to have strong economic growth and development.

15. A system of private property rights is essential for economic growth.

16. Economic growth is a necessary condition for human development.

Short Answer

17. Explain the difference between economic growth and economic development.

18. Given data on growth of real GDP and the growth of population, how can growth in real GDP per capita be calculated?

19. What is the growth accounting equation?

20. Explain the idea of convergence.

21. Does the evidence suggest that convergence is indeed occurring?

22. Identify seven factors that can promote economic growth and development. Are these factors requirements for achieving economic growth?

23. What kinds of institutions are beneficial for promoting economic growth and development?

24. Why have the net official flows from multilateral agencies turned negative in recent years?

25. Is China more "developed" than India? Explain.

Problems

1. Suppose the following data for the fictitious country Growland:

	2012	2013
Real GDP (in 2000 U.S. dollars)	286.9 billion	301.3 billion
Population	220.5 million	223.0 million

a. Calculate the growth in real GDP between 2012 and 2013.

b. Calculate the GDP per capita for 2012 and 2013. (Note that GDP is measured in billions, while population is measured in millions.

c. Calculate the population growth rate between 2012 and 2013.

d. Calculate the growth rate of GDP per capita.

2. Draw a graph with shifts in the ADE/AS curves to illustrate each of the following:

a. Economic growth with inflation rising.

b. Economic growth with inflation falling.

3. Use the growth accounting equation to solve for the following:

a. Suppose the growth rate of total factor productivity is 2 percent per year, and the growth rate of capital per worker is 2 percent per year. Calculate the growth in output per worker.

b. Suppose the growth in output per worker is 1.5 percent per year, and the growth in capital per worker is 3 percent per year. Calculate the growth rate of total factor productivity.

4. Whether worldwide inequality is increasing or decreasing much debated in the press and popular writings. Some commentators claim that the world is getting much more equal—"just look at the progress of India and China!" Others claim that the world is getting much more unequal—"just look at the problems in Sub-Saharan Africa!" This exercise has you explore data regarding such claims.

a. Using the data in the following table, create a graph showing real GDP per capita on the horizontal axis and the rate of real GDP per capita growth for 1980-2011 on the vertical axis. Plot the data for each country.

Country	**GDP per Capita, 2011 (PPP, 2005 US $)**	**Percent Growth in GDP Per Capita (PPP, Annual Average, 1980-2011)**
United States	42,486	1.7
Hong Kong	44,640	3.8
Japan	30,660	1.8
France	29,820	1.3
China	7,418	8.9
India	3,223	4.3
Bangladesh	1,569	2.7

Source: World Bank, World Development Indicators Database, 2013

b. Examining just these selected countries, is there evidence that convergence is occurring?

c. Now re-do your diagram for the following countries:

Country	GDP per Capita, 2011 (PPP, 2005 US $)	Percent Growth in GDP Per Capita (PPP, Annual Average, 1980-2011)
United States	42,486	1.7
Japan	30,660	1.8
France	29,820	1.3
Mexico	12,814	0.7
Brazil	10,279	1.0
Nicaragua	3,366	-0.2
Nigeria	2,237	1.0
Congo, Dem. Rep.	329	-2.7

Source: World Bank, World Development Indicators Database, 2013

d. Now is there evidence that convergence is occurring?

e. What criticism can you make about basing generalizations about world inequality on studies such as these?

Self Test

1. Suppose in a given year, a country's real GDP growth rate was 5 percent and its population grew at 2 percent. Then its per capita real GDP growth rate was:

a. 7%
b. 5%
c. 3%
d. 2%
e. 2.5%

2. If an economy is experiencing economic growth, this is usually shown in the AD/AS model with

a. a shift to the left of the AS and maximum capacity
b. a shift to the left of the AD curve.
c. a shift to the right of the AD curve.
d. a shift to the right of the AS and maximum capacity
e. a shift to the right of the AS and maximum capacity, together with a shift to the right of the AD curve.

3. Which of the following is *not* a factor of production?

a. Labor
b. Capital
c. Output
d. Natural resources
e. Human capital

4. The process of social and economic change that began in 18th century England and led to huge increases in output per worker is called

a. the democratic revolution
b. the communist revolution
c. the industrial revolution
d. the gender revolution
e. the environmental revolution

5. Which of the following was *not* one of the factors that contributed to the Industrial revolution?

a. New agricultural techniques, new tools and machines that boosted agricultural productivity.
b. New technologies adopted in factory production that boosted output in manufacturing.
c. New communication technologies that boosted output in the service sector.
d. Supplies of cheap raw materials from other countries.
e. Access to markets in other countries in which to sell finished products.

6. Which of the following was *not* one of the main policies promoted in the “Washington Consensus”?

a. Fiscal discipline
b. Development of infrastructure, health, and education
c. Market liberalization
d. Privatization
e. Trade liberalization

7. Which of the following best characterizes the record of the policies of the “Washington Consensus”?

a. The countries that most strictly followed the World Bank’s market-oriented development path suffered the most severe crises.
b. Some countries in Africa were forced to make cutbacks in desperately needed health and education.
c. Countries were barred from using fiscal policy for macroeconomic stabilization.
d. Some countries that did not follow the Washington Consensus experienced notable success.
e. All of the above.

8. Which of the following is one of the trends of global economic growth in the 20^{th} century?

a. World per capita economic output grew about fivefold.
b. The use of energy more than tripled.
c. Per capita incomes steadily increased.
d. Most of the growth came in the second half of the 20^{th} century.
e. All of the above.

9. Which of the following factors were key to Japan's rapid economic growth in the 1950-1980 period?

a. High savings rates.
b. The investment of savings in machines and equipment to boost productivity rates.
c. Investment in human capital.
d. Promotion of exports.
e. All of the above.

10. Which of the following is a middle-income country?

a. The Congo
b. France
c. Japan
d. Russia
e. Haiti

11. Which of the following characterizes the global distribution of per capita GDP across countries?

a. Income per person is highest in the industrialized countries.
b. Income per person is lowest in many African and Asian countries.
c. The income per person in many industrialized countries such as U.S., Canada, Europe, and Japan is more than $25,000.
d. Many of the low-income countries in sub-Sahara have income per capita lower than $2,500.
e. All of the above.

12. The evidence on the convergence debate suggests:

a. It is clear that convergence is occurring.
b. It is clear that convergence is failing to occur.
c. If one examines the number of poor countries remaining in poverty, it appears convergence is not occurring. But if one adjusts for population and look at the number of people moving out of poverty, it does appear convergence is occurring.
d. If one examines the number of poor countries remaining in poverty, it appears convergence is indeed occurring. But if one adjusts for population and look at the number of people moving out of poverty, it does not appear convergence is occurring.
e. Developing countries are neither converging nor diverging with the developed countries, but are growing at the same rate as the developed countries.

13. Which of the following has clearly NOT been converging to rich country income levels since 1980?

a. Nigeria
b. South Korea
c. Botswana
d. China
e. India

14. Which of the following is NOT considered by economists to be a source of economic growth?

a. Natural resources
b. Consumption
c. Savings and investment
d. Foreign sources of capital
e. Financial, legal, and regulatory institutions

15. A national system combining private ownership of capital with substantial reliance on government as a mode of coordination is known as

a. market socialism
b. administrative capitalism
c. impure communism
d. fascism
e. welfarism

16. Among variables NOT considered in the multidimensional poverty index are

a. income inequality
b. child mortality
c. school attendance
d. cooking fuel
e. drinking water

17. The Millennium Development Goals

a. have already largely been achieved
b. were introduced to the public by the World Bank
c. place greatest emphasis on reversing climate change
d. can be achieved indirectly with global GDP growth
e. None of the above.

18. The Kuznets curve hypothesis states that

a. inequality will intensify in a country as it grows richer, but beyond a certain point it will diminish.
b. inequality will steadily decrease as a county grows richer
c. inequality will increase as a country grows richer
d. a country's income level mattered more to inequality in the era of colonies
e. The hypothesis does not say anything about inequality.

19. Which of the following best characterizes the distribution of the world's income among the world's households?

a. Over four-fifths of the world's income goes to the richest 20 percent, while the poorest 40 percent only receive less than 4 percent of the world's income.
b. Nearly half of the world's income goes to the richest 20 percent, while the poorest 20 percent only receive 1.5 percent of the world's income.
c. Nearly half of the world's income goes to the richest 20 percent, while the poorest 40 percent only receive 10 percent of the world's income.
d. About one-third of the world's income goes to the richest 20 percent, while the poorest 20 percent receive about 30 percent of the world's income.
e. None of the above.

20. Which of the following is *not* one of the ingredients that can stimulate economic growth?

a. Savings and investment.
b. Technological innovation and entrepreneurship.
c. Access to domestic and international markets.
d. Contractionary macroeconomic policies to slow down aggregate demand.
e. Access to foreign capital.

21. From what sources can a developing country acquire funds to finance investments?

a. From domestic savings.
b. From bilateral assistance.
c. From multilateral assistance.
d. From private foreign banks.
e. All of the above.

22. Approximately how much in development assistance (as a % of GDP) do the rich countries give to poor developing countries?

a. Less than 1%
b. About 1%
c. About 3%
d. About 5%
e. About 10%

Answers to Active Review Questions

1. growth
2. development
3. factors of production
4. total factor (productivity)
5. Industrial Revolution
6. virtuous cycles (in development)
7. convergence
8. bilateral
9. multilateral
10. foreign direct (investment)
11. False, the effect of economic growth on inflation is ambiguous. If the AS curve shifts further to the right than the AD curve, the inflation rate may decline. If the AD curve shifts further to the right than the AS curve, the inflation rate may rise.
12. True.
13. False. Poorly planned or misguided development projects may lead to waste or even harm.
14. False. While natural resources are generally very important, there are some economies with few natural resources that have done very well (e.g. Hong Kong and Singapore, which are natural ports but have little energy or mineral resources or arable land).
15. False. Some countries, like China and Vietnam, have been successful in achieving economic growth without a system of private property rights.
16. False. Economic growth often helps, but it is not required. Human development has many dimensions, and it could be achieved through progress in many different areas unrelated to income.
17. Economic growth is the growth in production of output (or income), and can be measured as the percent change in real GDP. Economic development is the movement of the population from poverty into a situation of material plenty or well-being.
18. Growth in real GDP per capita = growth in real GDP – growth in population.
19. It is an equation that measures the growth rate of output per worker. Specifically, it is: growth rate of output per worker = growth rate of total factor productivity + 0.3(growth rate of manufactured capital per worker).
20. The idea of convergence is that the poor countries are on a path to "catch up" with the rich countries, because they are starting off with little capital. So as they experience increases in their manufactured capital stock, their output will grow at a faster rate than that of rich countries that are already rich in manufactured capital.
21. If one examines the number of poor countries remaining in poverty, and one counts each country equally, then it appears convergence is not occurring. But if one adjusts for population and look at the number of people moving out of poverty, it does appear convergence is occurring. This is primarily due to the rapid growth rates of the two most populous countries, China and India.
22. The factors that can promote economic growth include: savings and investment, technological innovation and entrepreneurship, good macroeconomic policies that

stabilize aggregate demand, access to international markets, availability of natural resources, access to foreign capital, good institutions. These factors are not requirements for economic growth, however, as there are many examples of countries that have achieved growth without one or more of these factors.

23. The beneficial institutions include: a good banking system; a good legal system with private property rights and contact enforcement; and the absence of corruption, internal conflict, and political instability.
24. Because developing countries are currently paying back more due to their heavy debt burdens, than what they receive in new loans.
25. Despite rapid economic growth in both countries in recent decades, China has made significantly more progress in improving the capabilities of its people. It has placed a greater priority in developing the economic potential of its population. Unless human freedom is utmost priority in one's conception of development—China's government is authoritarian, India's is a democracy—China has made more progress is human development.

Answers to Problems

1.

a. [(301.3 – 286.9) / 286.9] × 100 = 5.0%

b. Real GDP per capita for 2012 = $286,900,000,000 / 220,500,000 = $1,301

Real GDP per capita for 2013 = $301,300,000,000 / 223,000,000 = $1,351

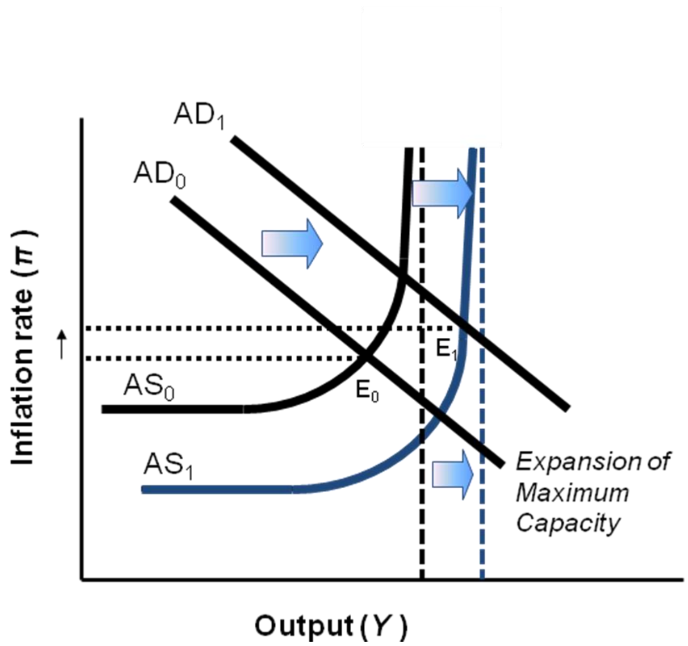
c. [(223.0 – 220.5)/220.5] × 100 = 1.1%

d. 5.0% – 1.1% = 3.9%

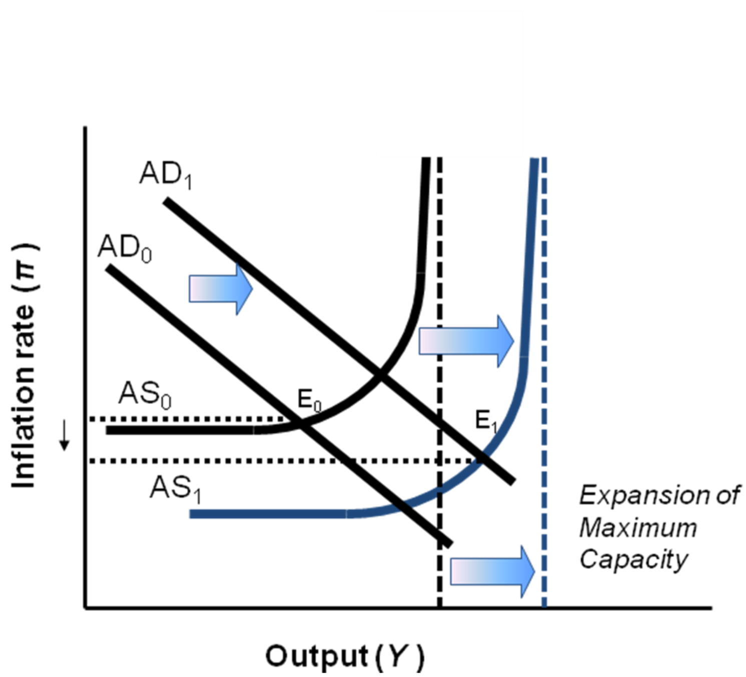
Calculating the percentage change in real GDP per capita from part b, as (1351-1301)/1301 × 100, gives a rate of 3.8%. This is also an acceptable answer.

Technical Note: The simple formula given for figuring percentage changes is to blame for the discrepancy between the two answers. In practice, professional economists often use a different formula--the "log-difference formula"--to calculate percentage changes. Using the "ln" (natural log) function on a calculator or spreadsheet, the equation $[\ln(GDP_{2013}) - \ln(GDP_{2012})] \times 100$ gives a measure of percentage change. Using this method of calculating percentage changes, there would be no discrepancies (except due to rounding.)

2.
a. Economic growth with inflation rising.



b. Economic growth with inflation falling.



3.
a. 2% + .3(3%) = 2.6%
b. Plugging in the numbers, 1.5% = growth rate of A + .3(3%). This implies that 1.5% – .9% = 0.6% is the growth rate of A.

4.a. Chart not provided

b. Yes, looking only at this evidence, it would appear that convergence may be occurring. The poorer countries tend, on balance, to have faster growth rates than the richer countries, and are on the path to “catch up” to them.

c. Chart not provided

d. Now it does *not* appear that convergence is occurring, because the poor countries are growing at rates generally less than those of the developed countries.

e. Neither “study” looks at the whole picture.

Answers to Self Test Questions

1. C
2. E
3. C
4. C
5. C
6. B
7. E
8. E
9. E
10. D
11. E
12. C
13. A
14. B
15. B
16. A
17. E
18. A
19. A
20. D
21. E
22. A