

SOLUTIONS TO TEXT PROBLEMS:

Quick Quizzes

1. The approximate growth rate of real GDP per person in the United States is 1.81 percent (based on Table 1) from 1870 to 2000. Countries that have had faster growth include Japan, Brazil, Mexico, Canada, Germany, China, and Argentina; countries that have had slower growth include India, Indonesia, United Kingdom, Pakistan, and Bangladesh.
2. The four determinants of a country's productivity are: (1) physical capital, which is the stock of equipment and structures that are used to produce goods and services; (2) human capital, which is the knowledge and skills that workers acquire through education, training, and experience; (3) natural resources, which are inputs into production that are provided by nature, such as land, rivers, and mineral deposits; and (4) technological knowledge, which is society's understanding of the best ways to produce goods and services.
3. Ways in which a government policymaker can try to raise the growth in living standards in a society include: (1) investing more current resources in the production of capital, which has the drawback of reducing the resources used for producing current consumption; (2) encouraging investment from abroad, which has the drawback that some of the benefits of investment flow to foreigners; (3) increasing education, which has an opportunity cost in that students are not engaged in current production; (4) protecting property rights and promoting political stability, for which no drawbacks are obvious; (5) pursuing outward-oriented policies to encourage free trade, which may have the drawback of making a country more dependent on its trading partners; (6) reducing the rate of population growth, which may have the drawback of reducing individual freedom and lowering the rate of technological progress; and (7) encouraging research and development, which (like investment) may have the drawback of reducing current consumption.

Questions for Review

1. The level of a nation's GDP measures both the total income earned in the economy and the total expenditure on the economy's output of goods and services. The level of real GDP is a good gauge of economic prosperity, and the growth of real GDP is a good gauge of economic progress. You would rather live in a nation with a high level of GDP, even though it had a low growth rate, than in a nation with a low level of GDP and a high growth rate, since the level of GDP is a measure of prosperity.
2. The four determinants of productivity are: (1) physical capital, which is the stock of equipment and structures that are used to produce goods and services; (2) human capital, which consists of the knowledge and skills that workers acquire through education, training, and experience; (3) natural resources, which are inputs into production that are provided by nature; and (4) technological knowledge, which is society's understanding of the best ways to produce goods and services.
3. A college degree is a form of human capital. The skills learned in earning a college degree increase a worker's productivity.
4. Higher saving means fewer resources are devoted to consumption and more to producing capital goods. The rise in the capital stock leads to rising productivity and more rapid growth in GDP for a while. In the long run, the higher saving rate leads to a higher standard of living. A policymaker might be deterred from trying to raise the rate of saving because doing so requires

that people reduce their consumption today and it can take a long time to get to a higher standard of living.

5. A higher rate of saving leads to a higher growth rate temporarily, not permanently. In the short run, increased saving leads to a larger capital stock and faster growth. But as growth continues, diminishing returns to capital mean growth slows down and eventually settles down to its initial rate, though this may take several decades.
6. Removing a trade restriction, such as a tariff, would lead to more rapid economic growth because the removal of the trade restriction acts like an improvement in technology. Free trade allows all countries to consume more goods and services.
7. The higher the rate of population growth, the lower is the level of GDP per person, because there's less capital per person, hence lower productivity.
8. The U.S. government tries to encourage advances in technological knowledge by providing research grants through the National Science Foundation and the National Institute of Health, with tax breaks for firms engaging in research and development, and through the patent system.

Problems and Applications

1. The facts that countries import many goods and services yet must produce a large quantity of goods and services themselves to enjoy a high standard of living are reconciled by noting that there are substantial gains from trade. In order to be able to afford to purchase goods from other countries, an economy must generate income. By producing many goods and services, then trading them for goods and services produced in other countries, a nation maximizes its standard of living.
2.
 - a. Producing cars requires a factory with machines, robots, and an assembly line, as well as human capital that comes from training workers.
 - b. Producing a high-school education requires books and buildings as well as human capital from the teachers.
 - c. Producing plane travel requires planes and airports as well as human capital in terms of pilots' knowledge.
 - d. Producing fruits and vegetables requires irrigation systems, harvesting machinery, and trucks to transport the goods to the market, as well as human capital in the form of agricultural knowledge.
3. Today's standard of living differs from those of our great-grandparents because of improved transportation, communications, entertainment, machinery for household work, and computers, among other things.
4. In the manufacturing sector, employment has fallen sharply while output remains about the same percentage of GDP as before. This is good for our economy because it is the result of increased productivity. Many manufactured goods are much cheaper than they used to be.
5.
 - a. More investment would lead to faster economic growth in the short run.

- b. The change would benefit many people in society who would have higher incomes as the result of faster economic growth. However, there might be a transition period in which workers and owners in consumption-good industries would get lower incomes, and workers and owners in investment-good industries would get higher incomes. In addition, someone would have to reduce their spending for some time so that investment could rise.
- 6.
 - a. Private consumption spending includes buying food and buying clothes; private investment spending includes people buying houses and firms buying computers. Many other examples are possible.
 - b. Government consumption spending includes paying workers to administer government programs; government investment spending includes buying military equipment and building roads. Many other examples are possible.
- 7. The opportunity cost of investing in capital is the loss of consumption that results from redirecting resources towards investment. Over-investment in capital is possible because of diminishing marginal returns. A country can "over-invest" in capital if people would prefer to have higher consumption spending and less future growth. The opportunity cost of investing in human capital is also the loss of consumption that is needed to provide the resources for investment. A country could "over-invest" in human capital if people were too highly educated for the jobs they could get—for example, if the best job a Ph.D. in philosophy could find is managing a restaurant.
- 8.
 - a. When a German firm opens a factory in South Carolina, it represents foreign direct investment.
 - b. The investment increases U.S. GDP since it increases production in the United States. The effect on U.S. GNP would be smaller since the owners would get paid a return on their investment that would be part of German GNP rather than U.S. GNP.
- 9.
 - a. The United States benefited from the Japanese investment since it made our capital stock larger, increasing our economic growth.
 - b. It would have been better for the United States to make the investments itself since then it would have received the returns on the investment itself, instead of the returns going to Japan.
- 10. Greater educational opportunities for women could lead to faster economic growth in the countries of South Asia because increased human capital would increase productivity and there would be external effects from greater knowledge in the country. Second, increased educational opportunities for young women may lower the population growth rate because such opportunities raise the opportunity cost of having a child.
- 11.
 - a. Political stability could lead to strong economic growth by making the country attractive to investors. The increased investment would raise economic growth.
 - b. Strong economic growth could lead to political stability because when people have high incomes they tend to be satisfied with the political system and are less likely to overthrow or change the government.