

1. (5 points) Many sources for water in Rwanda are contaminated, which causes health problems. Suppose non-profit organizations and village leaders make investments in Rwanda improve access to clean reliable sources of water for drinking, cooking, and addressing other basic human needs. Describe and illustrate how each influences the *long-run* level of output per worker.
 2. (5 points) An earthquake in Nepal destroys many businesses' buildings, infrastructure, and factories. Describe and illustrate how each influences the *long-run* level of output per worker.
 3. (5 points) A recent recession causes people to take extra precautions by permanently increase the fraction of income they save. Describe and illustrate how each influences the *long-run* level of output per worker.
 4. (5 points) Suppose in an effort to reduce the government budget deficit, the government cuts a number of spending programs but leaves taxes unchanged. Describe and illustrate how each influences the *long-run* level of output per worker.

5. Suppose that on average when people get an increase in income of \$100, their savings increases by \$10, and their purchases of imported goods increases by \$15.
- (a) (5 points) Suppose an increase in consumer confidence leads to an increase in consumption spending by \$300 billion. Calculate the immediate effect on real GDP.
- (b) (5 points) Suppose the economy is in a recession, real GDP is currently \$19 trillion and potential GDP is \$20 trillion. The president decides to increase government spending to solve the problem. By how much should government increase its spending?
6. Suppose an increase in global trade causes a change in consumer behavior such that given an increase in income, the fraction that is spent on imports becomes larger.
- (a) (5 points) What is the effect on the expenditure multiplier?
- (b) (5 points) What is the implication for the ability of the government to influence real GDP with government expenditure policies?

7. (5 points) Suppose while balancing the government budget constraint, the government gives larger tax incentives for people to save for retirement. Describe and illustrate the impact on the equilibrium level of investment and interest rate.
 8. (5 points) Suppose a poor, under-developed country develops a new network of roads and highways that makes development of new manufacturing facilities, warehouses, and distribution centers more productive / more profitable. Describe and illustrate the impact on the equilibrium level of investment and equilibrium interest rate.
 9. (5 points) Suppose there is an improvement in communications technology that makes workers more productive. Describe and illustrate the impact on the equilibrium level of investment and equilibrium interest rate.

10. (5 points) Suppose there is a decrease in average income in European countries, which are major trading partners to the United States. Describe and illustrate the impact on equilibrium employment and wages in the United States.
11. (5 points) Suppose that people in the Baby Boomer generation choose to wait longer until they retire, while at the same time, people in the Millennial generation begin graduating high school and college and enter the labor force. Describe and illustrate the impact on equilibrium employment and wages.
12. (5 points) Suppose there is an improvement in communication technology that makes many workers more productive. Describe and illustrate the impact on equilibrium employment and wages.
13. (5 points) Suppose there is an increase in immigration into the United States. The immigrants seek employment and consume final goods and services. Describe and illustrate the impact on equilibrium employment and wages.

14. Suppose the country of LoompaLand has a non-institutionalized, civilian adult population of 15,000. Of these people (Oompa Loompas, actually), 3,000 are employed at Willy Wanka's Chocolate Factory; 1,500 are employed as chocolate industry spies by Sluggworth's Chocolates; 2,000 are employed as vocalists in the local music industry; another 2,500 Oompa Loompas are looking for jobs, but are not yet employed; and 3,500 Oompa Loompas are not employed, but are not looking for jobs because they became frustrated and gave up trying to find a job. The remaining 2,500 Oompa Loompas are retired.

(a) (5 points) Define the **labor force participation rate**. Compute the labor force participation rate for LoompaLand.

(b) (5 points) Define the **unemployment rate**. Compute the unemployment rate for LoompaLand.

(c) (5 points) Define **discouraged worker**. How many discouraged workers are there in LoompaLand?

(d) (5 points) Suggest two problems with using the headline unemployment rate as a measure for the health of the labor market.