Answers To Chapter 16

■ Review Questions

1. Answer a. The production possibilities curve has a slope of $-5$. This tells how much corn must be given up to attain an additional unit of wheat.

2. Answer d. If 1 unit of wheat costs 2 units of corn as the slope of the production possibilities curve indicates, then it is possible to express that same tradeoff as 1 unit of corn for 1/2 unit of wheat.

3. Answer b. Per capita consumption in the U.S. is 0.4 units of wheat and 2 units of corn. In Canada, per capita consumption is 0.9 unit of wheat and 4.8 units of corn. Canada has the higher real wage rates in this case.

4. Answer d. The limits of the terms of trade are between 2 and 5 units of corn for a unit of wheat, or conversely, between 1/2 and 1/5 unit of wheat for one unit of corn. All the answers fall in this range.

5. Answer c. The new “trading possibilities curve” has a slope of $-4$. This tells how much corn must be given up to attain an additional unit of wheat.

6. Answer d. After specialization, the U.S. will have 400 units of corn and no wheat (point $b$), and Canada will have 120 units of wheat and no corn (point $v$). To get from these points to the final allocations, Canada must have traded 50 units of wheat to the U.S. for 200 units of corn.

7. Answer d. While both countries still fully employ their resources, all farmers in the U.S. now produce corn, while all Canadian farmers produce wheat. Before trade, there used to be some of both in each country. Note however, that per capita consumption levels have risen, indicating higher real wages through the shifting out of the production possibilities curve for each country.

8. Answer c. Lower wages abroad mean that total production costs for U.S. firms (that have overseas facilities) will fall. This decreases firm costs and increases supply (in a competitive market). Thus the price of the final product will fall, and output will increase as quantity demanded rises. At a higher scale of production, firms will demand more of all types of workers, increasing the U.S. demand for labor.

9. Answer a. Lower wages abroad make the ratio of wages to marginal productivity abroad lower than it was previously and encourages substitution of foreign labor for domestic labor. The demand for U.S. labor falls.

10. Answer b. Where foreign labor is a large part of the cost of production, a fall in its price will lead to a large decrease in total costs, which will make the scale effect relatively larger, and thus it is more likely that the demand for labor will increase.
11. **Answer d.** Although empirical studies show mixed results, on average the consensus seems to be that current effects of international trade have reduced employment greatly in some sectors, but since labor is relatively mobile, overall effects have been slightly negative but small.

12. **Answer b.** A lower wage to marginal productivity ratio will cause firms to consider moving. However, the costs of moving and trading across borders are generally very high, and thus firms are only likely to move if the cost savings is large enough to outweigh the additional costs of relocating production.

13. **Answer a.** Wage convergence is most likely when workers have similar skill levels and the location of production relative to the end user is not very important, as with telecommunications and many manufactured goods.

14. **Answer d.** The least-skilled and thus least able to adapt workers are most likely to be displaced by trade. Government assistance to these workers can both help subsidize the cost of necessary human capital investment and help these workers move to new sectors, thus speeding the efficient reallocation of resources.

15. **Answer c.** The costs of trade are not limited to affected markets, particularly since workers in other areas may experience increased uncertainty and risk as well as experiencing unpredictable swings in wages.

### Problems

16a. For the U.S., 1 unit of food costs 0.25 units of clothing. Conversely, 1 unit of clothing costs 4 units of food.

16b. For China, 1 unit of food costs 0.5 units of clothing. Conversely, 1 unit of clothing costs 2 units of food.

16c. The U.S. is the low-cost producer of food, China is the low-cost producer of clothing.

16d. In the U.S., workers consume 2.4 units of food and 0.4 units of clothing per person, while in China, workers consume 0.2 units of food and 0.4 units of clothing per person.

16e. The U.S. should specialize in food, China should specialize in clothing.

16f. A unit of food would have to trade for at least 0.25 units of clothing (otherwise the U.S. would not cover its costs), but no more than 0.5 units of clothing (otherwise China could produce the food itself).

16g. After specialization, the U.S. would have 400 units of food and no clothing. China would have 300 units of clothing and no food. Now suppose a trade of 150 units of food for 50 units of clothing were made. The U.S. would end up with 250 units of food and 50 units of clothing. China would end up with 150 units of food and 250 units of clothing. Per capita consumption levels would rise to 2.5 units of food and 0.5 units of clothing in the U.S., and 0.25 units of food and 0.4167 units of clothing in China. These figures represent an increase in living standards for both countries.
17. Barriers to trade are constructed to avoid the transitional job losses that trade imposes. For example, in this problem even though living standards improve, initially the U.S. would have lost clothing jobs to China. Eventually these would have been made up by new jobs in the food-producing sector, but this transition of resources is not always smooth or painless for many workers. To avoid making these kinds of adjustments, countries often look to devices like tariffs and import quotas to preserve existing industries and jobs.

18. Technological change and international trade are similar in that they both cause transitional job losses. With technological change, jobs are lost in the sectors producing outdated products, or through substitutions of capital for labor. Eventually, this labor is reabsorbed into the other expanding sectors of the economy that the technological change and increased efficiency has made possible, but the transition process is not always smooth or painless for many workers.

19a. The costs of trading across borders are significantly higher for many service-related industries. For example, it would not generally be cost-effective for a doctor to deliver medical care from another country; the transaction costs involved would simply be too high. On the other hand, unless the good being produced is unusually difficult or costly to transport, the cost of trading across borders, while significant, is not generally sufficient to make relocation of production facilities undesirable.

19b. Substitution effects are large because clothing production is relatively unskilled labor, and thus the elasticity of substitution between U.S. and foreign workers is large. Domestic workers remaining are likely to have jobs that are substitutes, not complements, to foreign production, and demand for these goods is elastic and thus very responsive to price/cost changes. Thus small changes in either the foreign wage or the domestic wage are likely to cause large changes in domestic employment, with no significant positive scale effects to offset them.

20a. Trade represents a reallocation of resources, not a permanent loss of resources. Jobs will be lost in those areas where Mexico can produce goods more cheaply, but at the same time, opportunities will grow in those areas where the U.S. is the low-cost producer. Because of specialization and trade, living standards (real wage rates) in both countries should rise.

20b. Import quotas do seem to preserve employment in those areas where they apply. However, if the import quotas result in more monopoly power for domestic firms, the price increases that result may reduce the number of jobs that are really preserved. Also, the reduction in competition may lead the domestic firms to grow sluggish and inefficient, leading to even more job losses in the future.