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ECON 151: Microeconomics

Fall 2023

Homework 5

1. In the United States, the opportunity cost of 1 ton of corn is 50 bicycles. In China, the opportunity cost of 1 bicycle is 0.01 ton of corn.

a. Determine the pattern of comparative advantage.

Since it is cheaper for China to produce bicycles because of their opportunity cost China would have a comparative advantage in producing bicycles whilst the US would have a comparative advantage in producing corn.

b. In autarky, the United States can produce 200,000 bicycles if no corn is produced, and China can produce 3,000 tons of corn if no bicycles are produced. Draw each country’s production possibility frontier, assuming constant opportunity cost, with tons of corn on the vertical axis and bicycles on the horizontal axis.

1. United States – 200k bikes, 0 T corn

United States – 100k bikes, 1000 T corn

United States – 50k bikes, 2000 T corn

2. China – 3k T corn 0 bikes

China – 2k T corn, 0.015 bikes

China – 1k T corn, 0.3 bikes

c. With trade, each country specializes in its production. The United States consumes 1,000 tons of corn and 200,000 bicycles; China consumes 3,000 tons of corn and 100,000 bicycles. Indicate the production and consumption points on your diagrams, and use them to explain the gains from trade.

If both engage in trade, they would lower the costs of getting each other's respective product and in turn, they would both benefit from trading because it would be cheaper just buying the other product than producing it themselves and they would also save resources because of the trade.

2. Explain the following patterns of trade using the Heckscher–Ohlin model.

a. France exports wine to the United States, and the United States exports movies to France.

Because France has better wine making capabilities but lacks movies, they trade with the US who is more abundant in movies than they are in wine.

b. Brazil exports shoes to the United States, and the United States exports shoe-making machinery to Brazil.

The US has better technology but lacks good shoes while Brazil has good shoes but lacks the technology to continue making them so they initiate a trade between them so that both will benefit.

3. Due to a strike by truckers, trade in food between the United States and Mexico is halted. In autarky, the price of Mexican grapes is lower than that of U.S. grapes. Using a diagram of the U.S. domestic demand curve and the U.S. domestic supply curve for grapes, explain the effect of the strike on the following.

a. U.S. grape consumers’ surplus

Their surplus would decrease because the cost of grapes would increase due to the lack of trade.

b. U.S. grape producers’ surplus

Their surplus would decrease because it would cost more to produce grapes since they have fewer grapes coming in from lack of trade.

c. U.S. total surplus

The total surplus would decrease because consumers would be spending more to get the same number of grapes they would usually get and because it costs producers in the US more to bring out those grapes for consumers because of the strike.

4. What effect do you think the strike will have on:

Mexican grape producers? -

It would cost more for them to produce and ship grapes over to the US.

Mexican grape pickers? –

They might get paid less for the grapes they produce, or the amount of labor needed for the grapes might be increased.

Mexican grape consumers? –

The quality of grapes they consume might worsen or they might have to spend more to get the same grapes they did before.

U.S. grape pickers? -

They could also get a decrease in their pay because of the strike, or they might have to spend more to get the grapes shipped out.