9| TRADE AND WELFARE

Purpose: To show the effects of international trade on social welfare.

Computer file: **tradewlf98.xls**

Instructions and background information:

Once again we get to explore the implications for social welfare of an important policy issue in economics, namely, the effects of allowing international trade in a good. The tools to answer this question are the now familiar ones of producer and consumer surplus.

The spreadsheet for this problem shows supply and demand curves for wine in a small country. We first consider this country in isolation when there is no trade. In the absence of trade, price and quantity are determined by domestic supply and demand. The social welfare from domestic production and consumption of wine is the sum of producer and consumer surplus at the home equilibrium price.

When international trade is possible, consumers and producers can buy and sell wine at the world price. If the world price is *greater* than the no-trade price, then the country will be an exporter of wine. On the other hand, if the world price is *less* than the no-trade price, then the country will be an importer of wine.

Introducing international trading in wine affects producer and consumer surplus, as well as the total surplus for the country. Allowing trade *always* increases the total surplus in the market for the traded good.

Consumers and producers are affected differently, however. If trade results in exports of wine, then domestic consumers are hurt because they must pay a higher price than before. Producers will gain surplus as a result of the higher price. By comparison, if trade results in imports of wine, then domestic consumers are better off because they pay a lower price for wine. But producers are hurt because they get a lower price.

The spreadsheet shows supply and demand curves for wine. You can change the world price and the graph shows the resulting quantities supplied and demanded at that price. If you set the world price above the no-trade equilibrium, which is shown as a faint dotted line in the chart, the amount of wine exported is the difference between supply and domestic demand. If the world price is less than the no-trade equilibrium, then imports are the difference between domestic demand and domestic supply. In this problem you cannot change either the tax rate or the level of consumer income.

Here are some things to watch for and learn as you do the problems:

1)   Total welfare, measured by the sum of consumer and producer surplus is always increased when trade can take place.

2)   Compared to the no-trade situation, if a good is *exported* there will be an increase producer surplus, and a decrease consumer surplus. Domestic producers gain from trade, and domestic consumers lose.

3)   Compared to the no-trade situation, if a good is *imported* there will be a decrease in producer surplus, and an increase in consumer surplus. Domestic producers lose from trade, and domestic consumers gain.

4)   World prices, based on the principle of comparative advantage, determine whether a good will be imported or exported.

Here are some hints to help you get the answers quicker:

1)   You'll need a calculator to do the computations. The area of a right triangle is (1/2)×base×height.

2)   For each group of questions, drawing a sketch of the graphs on a piece of scrap paper will help. Label the crucial points in your sketch by referring to the worksheet display of the graph.

3)   You'll need to know where the supply and demand curves intersect the price axis. You can do this by trial and error changing the world price. Or you can use Goal Seek, once to find the world price for which quantity demanded equals zero, and again to find the world price for which quantity supplied equals zero.

4)   On the way to computing values for consumer and producer surplus, you'll need to find the no-trade equilibrium quantity in the market. Use Goal Seek (or experimentation) to find the world price that makes the excess demand for wine equal to zero.

TRADE AND WELFARE

Questions

The sheet shows the market for wine in a small country.
1) If there is no trade in wine, what is the domestic price?
2) What is the domestic quantity?

Assume there is no trade in wine.
3) What's the amount of consumer surplus.
4) What's the amount of producer surplus.
5) What's the total surplus?

Suppose the world price of wine is $20, and that importing and exporting wine is allowed.
6) Will the small country be an importer or exporter?

With the world price at $20,
7) What's the quantity demanded of wine?
8) What's the new amount of consumer surplus?
9) Did consumers gain or lose from trade?

With the world price at $20,
10) What's the quantity supplied of wine?
11) What's the new amount of producer surplus?
12) Did producers gain or lose from trade?

13) With free trade in wine at a world price of $20, how much is the gain in total surplus?

Now suppose the world price of wine is $7, and that importing and exporting wine is allowed.
14) Will the small country be an importer or exporter?

With the world price at $7,
15) What's the quantity demanded of wine?
16) What's the new amount of consumer surplus?
17) Compared to no trade, did consumers gain or lose from trade?

With the world price at $7,
18) What's the quantity supplied of wine?
19) What's the new amount of producer surplus?
20) Compared to no trade, did producers gain or lose from trade?

21) With free trade in wine at a world price of $7, how much is the gain in total surplus?

22) With the world price at $20, print the graph and shade in the GAIN in surplus due to trade. TURN IN THE PRINTOUT WITH THE REST OF YOUR ANSWERS. (If you save your answer sheet as a file, and submit it electronically, you should turn in the printout as requested by your instructor.)