15.8: Demand and Supply Analysis of International Trade

Learning Objectives

- Use supply and demand to explain the gains from trade

Demand and Supply Analysis of International Trade

We can use the theory of supply and demand to further understand the benefits of international trade. Consider two countries, Brazil and the United States, who produce sugar. Each country has a domestic supply and demand for sugar, as detailed in Table 1 and illustrated in Figure 2. In Brazil, without trade, the equilibrium price of sugar is 12 cents per pound and the equilibrium output is 30 tons. When there is no trade in the United States, the equilibrium price of sugar is 24 cents per pound and the equilibrium quantity is 80 tons. These equilibrium points are labeled with the point E. Notice that in this set-up, Brazil is the low-cost provider of sugar and has the cost-advantage.

Table 1. The Sugar Trade between Brazil and the United States

Price	Brazil: Quantity Supplied (tons)	Brazil: Quantity Demanded (tons)	U.S.: Quantity Supplied (tons)	U.S.: Quantity Demanded (tons)
8 cents	20	35	60	100
12 cents	30	30	66	93
14 cents	35	28	69	90
16 cents	40	25	72	87
20 cents	45	21	76	83
24 cents	50	18	80	80
28 cents	55	15	82	78

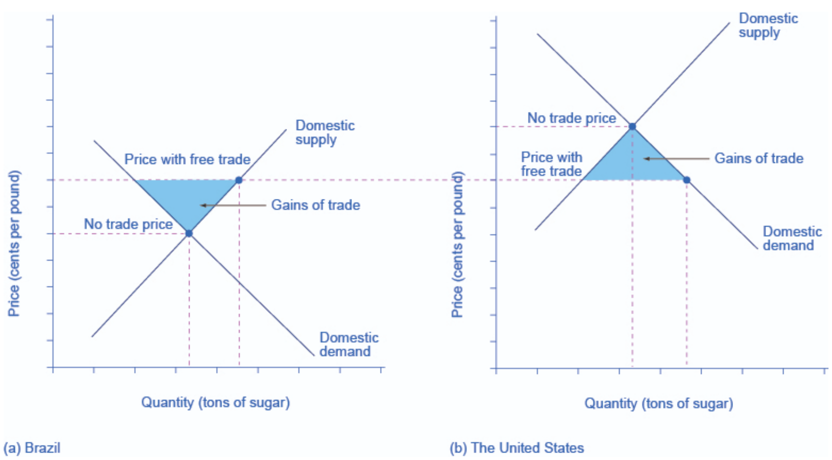

Figure 1.Free trade results in gains from trade. Total surplus increases in both countries. However, there are clear income distribution effects.

If international trade between Brazil and the United States now becomes possible, profit-seeking firms will spot an opportunity: buy sugar cheaply in Brazil, and sell it at a higher price in the United States. As sugar is shipped from Brazil to the United States, the quantity of sugar produced in Brazil will be greater than Brazilian consumption (with the extra production being exported), and the amount produced in the United States will be less than the amount of U.S. consumption (with the extra consumption being imported). Exports to the United States will reduce the supply of sugar in Brazil, raising its price. Imports into the United States will increase the supply of sugar, lowering its price. When the price of sugar is the same in both countries, there is no incentive to trade further. As Figure 1 shows, the equilibrium with trade occurs at a price of 16 cents per pound. At that price, the sugar farmers of Brazil supply a quantity of 40 tons, while the consumers of Brazil buy only 25 tons.

The extra 15 tons of sugar production, shown by the horizontal gap between the demand curve and the supply curve in Brazil, is exported to the United States. In the United States, at a price of 16 cents, the farmers produce a quantity of 72 tons and consumers demand a quantity of 87 tons. The excess demand of 15 tons by American consumers, shown by the horizontal gap between demand and domestic supply at the price of 16 cents, is supplied by imported sugar.

Free trade typically results in income distribution effects, but the key is to recognize the overall gains from trade, as shown in Figure 1. Building on the concepts you have already learned about supply and demand and consumer and producer surplus, Figure 1(a) shows that producers in Brazil gain by selling more sugar at a higher price, while Figure 1(b) shows consumers in the United States benefit from the lower price and greater availability of sugar. Consumers in Brazil are worse off (compare their no- trade consumer surplus with the free-trade consumer surplus) and U.S. producers of sugar are worse off. There are gains from trade—an increase in social surplus in each country. That is, both the United States and Brazil are better off than they would be without trade.

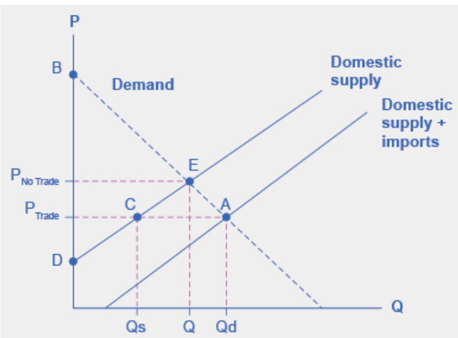

Figure 2. When there is free trade, the equilibrium is at point A. When there is no trade, the equilibrium is at point E.

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