Public Affairs 856
Trade, Competition, and Governance in a Global Economy
Lecture 17
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Introduction

- To avoid such losses due to tariffs, international agreements to reduce tariffs and move toward free trade are needed. These international agreements take several forms.

- The WTO is a **multilateral agreement**, involving many countries, with agreement to lower tariffs between all the members.

- There are also smaller **regional trade agreements**, involving several countries, often located near each other.

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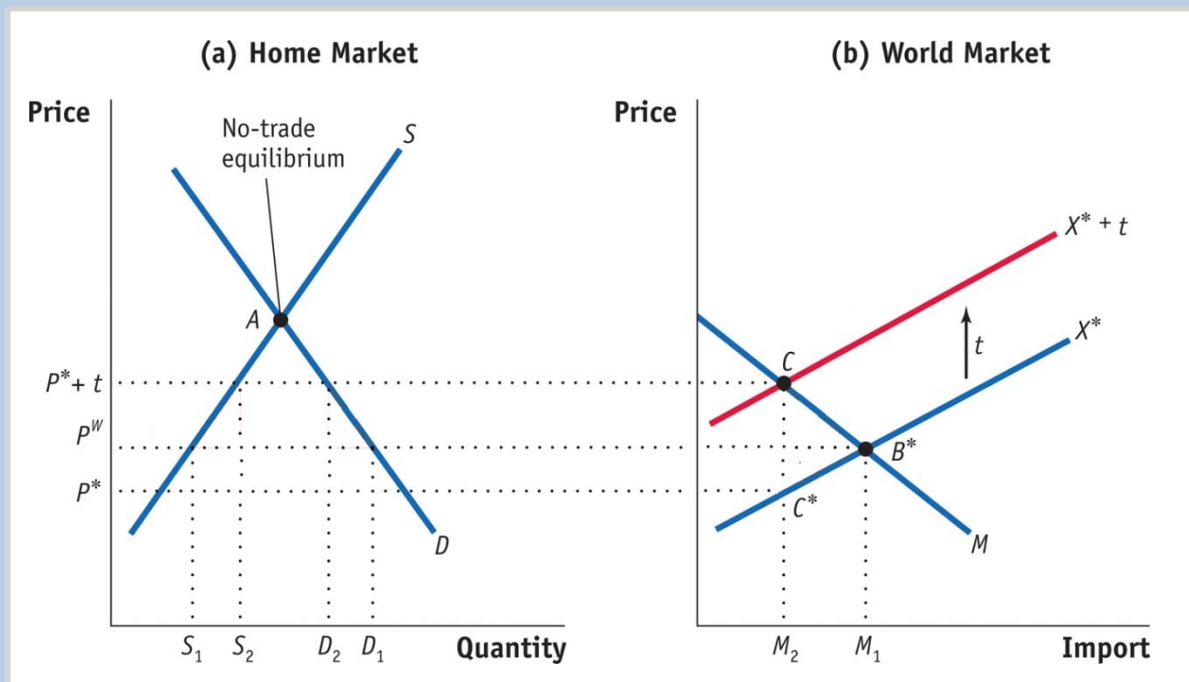# 1 International Trade Agreements

- When countries seek to reduce trade barriers between themselves, they enter into a **trade agreement**—a pact to reduce or eliminate trade restrictions.

- Under the **most favored nation principle** of the WTO, the lower tariffs agreed to in multilateral negotiations must be extended *equally* to all WTO members.

- The WTO is an example of a multilateral trade agreement, which we analyze first in this section.

1 International Trade Agreements

The Logic of Multilateral Trade Agreements

Tariffs for a Large Country

FIGURE 11-1 (1 of 2)   Tariff for a Large Country

(a) Home Market

(b) World Market

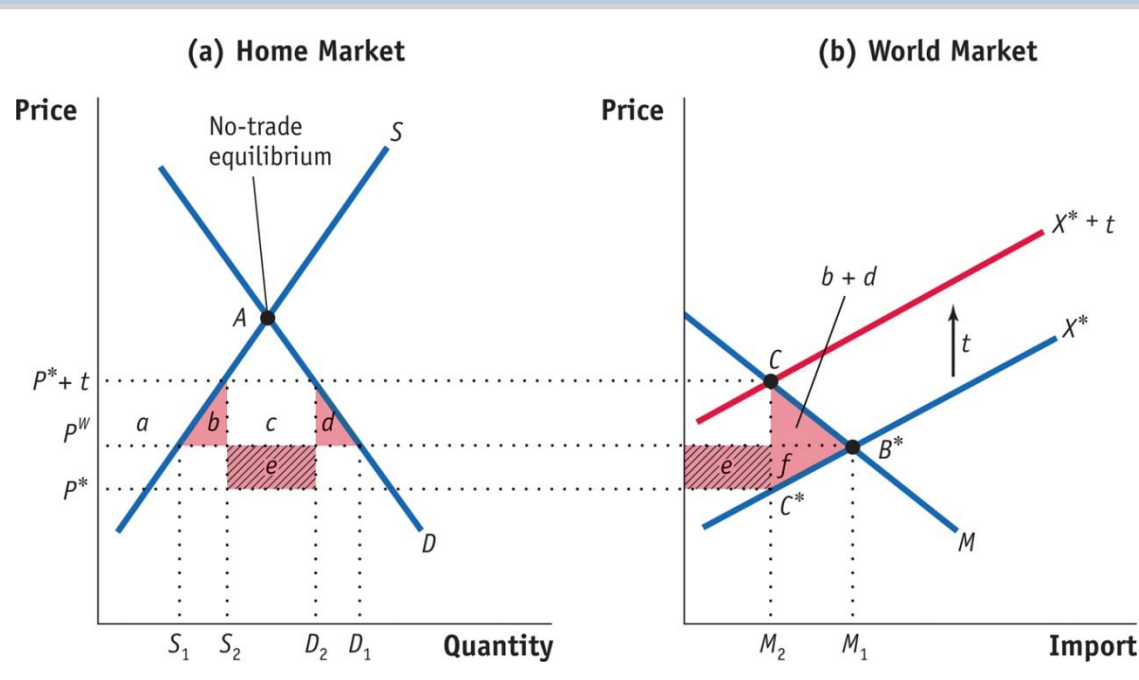The tariff shifts up the export supply curve from X^* to $X^* + t$.

As a result, the Home price increases from P^W to $P^* + t$, and the Foreign price falls from P^W to P^*.

The Logic of Multilateral Trade Agreements

Tariffs for a Large Country

FIGURE 11-1 (2 of 2) Tariff for a Large Country (continued)
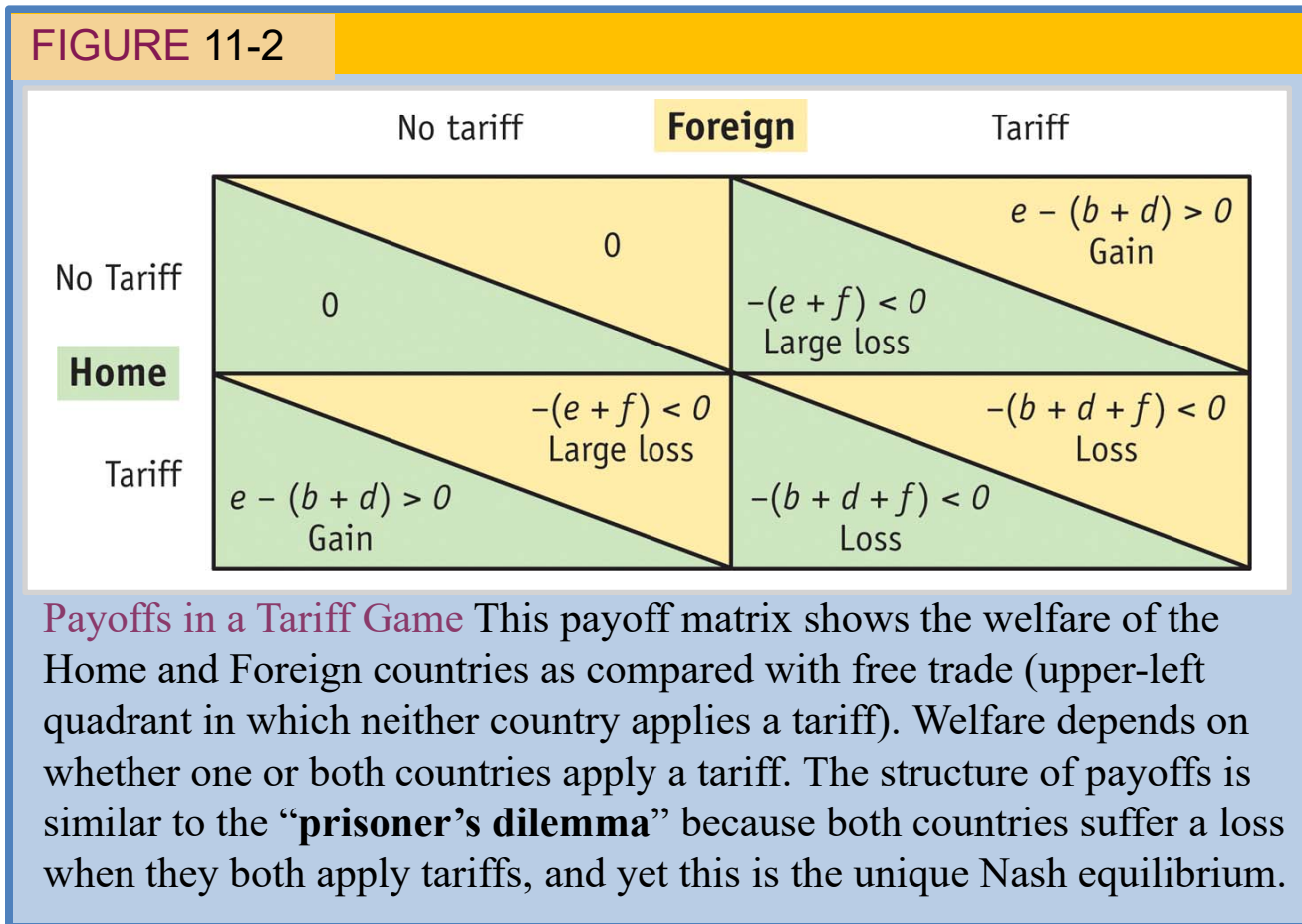
(a) Home Market

(b) World Market

The deadweight loss at Home is the area of the triangle ($b + d$), and Home also has a terms-of-trade gain of area e.

Foreign loses the area ($e + f$), so the net loss in world welfare is the triangle ($b + d + f$).

The Logic of Multilateral Trade Agreements

Payoff Matrix

FIGURE 11-2

	No tariff	**Foreign**	Tariff
No Tariff	0 / 0	0	$e - (b + d) > 0$ Gain
		$-(e + f) < 0$ Large loss	
Home Tariff	$-(e + f) < 0$ Large loss		$-(b + d + f) < 0$ Loss
	$e - (b + d) > 0$ Gain		$-(b + d + f) < 0$ Loss

Payoffs in a Tariff Game This payoff matrix shows the welfare of the Home and Foreign countries as compared with free trade (upper-left quadrant in which neither country applies a tariff). Welfare depends on whether one or both countries apply a tariff. The structure of payoffs is similar to the "**prisoner's dilemma**" because both countries suffer a loss when they both apply tariffs, and yet this is the unique Nash equilibrium.

The Logic of Multilateral Trade Agreements

Prisoner's Dilemma J.Baker1 The pattern of payoffs in Figure 11-2 has a special structure called the prisoner's dilemma. Each country acting on its own has an incentive to apply a tariff, but if they both apply tariffs, they will both be worse off.

FIGURE 11-2 (revisited)
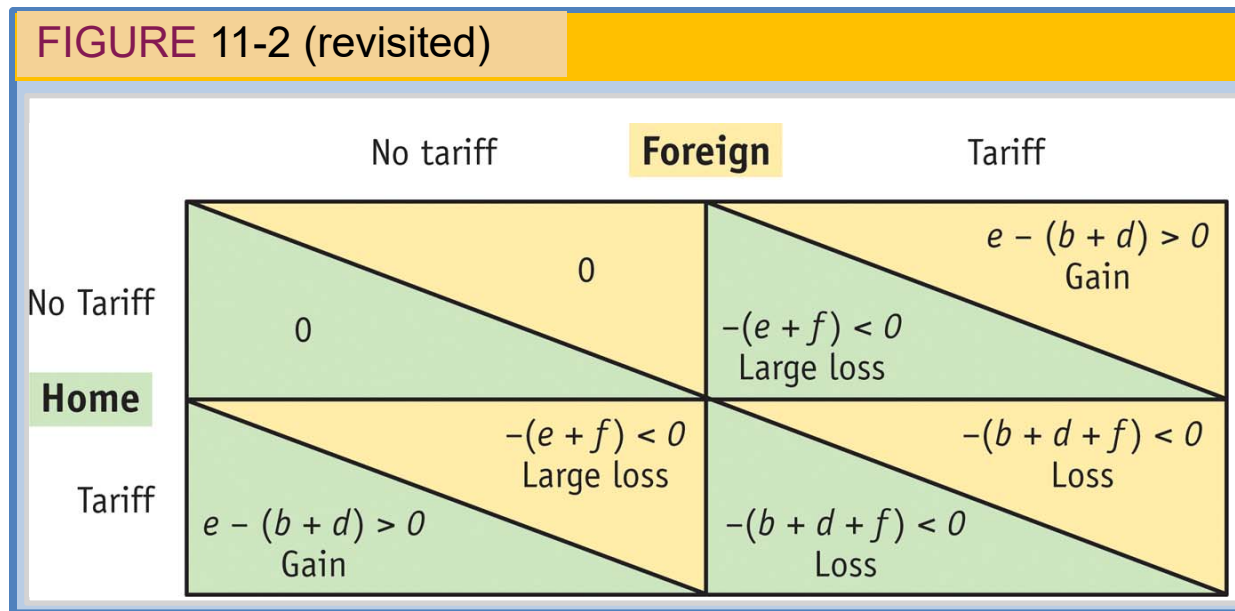
Nash Equilibrium The only Nash equilibrium in Figure 11-2 is for both countries to apply a tariff (lower-right quadrant). The Nash equilibrium in this case leads to an outcome that is undesirable for both countries even though it is the best outcome for each country given that the other country is imposing a tariff.

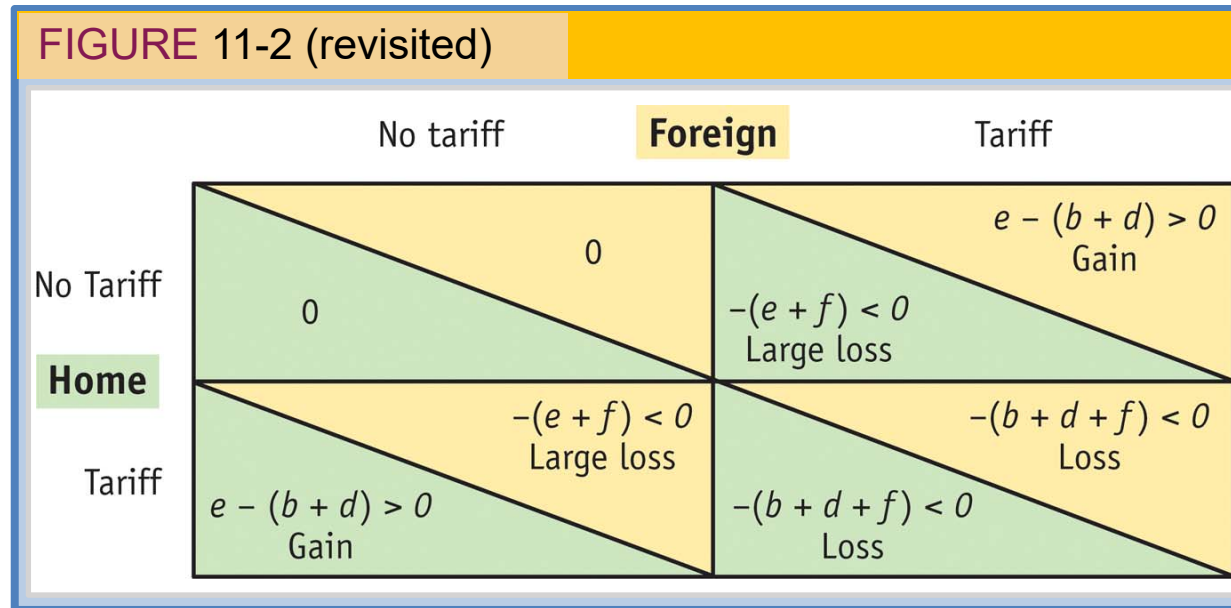**J.Baker1**   Switched subheads of Nash & Prisoner's to match how they appear in the textbook.

JNB, 7/16/2014

The Logic of Multilateral Trade Agreements

FIGURE 11-2 (revisited)

Trade Agreement

- This bad outcome can be avoided if the countries enter into some kind of trade agreement.

- The WTO mechanism eliminated the prisoner's dilemma by providing an incentive to remove tariffs; the outcome was in the preferred upper-left quadrant of the payoff matrix in Figure 11-2, rather than the original Nash equilibrium in the lower-right quadrant.

Regional Trade Agreements

Under regional trade agreements, several countries eliminate tariffs among themselves but maintain tariffs against countries outside the region.

Regional trade agreements are sometimes called **preferential trade agreements**, to emphasize that the member countries are favored over other countries.

Free-Trade Area

A **free-trade area** is a group of countries agreeing to eliminate tariffs (and other barriers to trade) among themselves but keeping whatever tariffs they formerly had with the rest of the world.

1 International Trade Agreements

Regional Trade Agreements

Customs Union

A **customs union** is similar to a free-trade area, except that in addition to eliminating tariffs among countries in the union, the countries within a customs union also agree to a *common* schedule of tariffs with each country outside the union.

Rules of Origin

Free-trade areas have complex **rules of origin**, which specify what type of goods can be shipped duty-free within the free-trade area. These rules are not needed in a customs union.

Trade Creation and Trade Diversion

When a regional trade agreement is formed and trade increases between member countries, the increase in trade can be of two types.

- The first type of trade increase, **trade creation**, occurs when a member country imports a product from another member country that it formerly produced for itself.

- The second reason for trade to increase within a regional agreement is due to **trade diversion**, which occurs when a member country imports a product from another member country that it formerly imported *from a country outside of the new trade region.*

China-ASEAN Treaty Threatens Indian Exporters

The free trade agreement between China and members of the Association of Southeast Asian Nations (ASEAN) will mean nearly zero duty trade between several Asian nations making it difficult for Indian businesses.

The successful implementation of the FTA is bound to force New Delhi to expatiate similar trade agreements with countries in the ASEAN region besides China.

India has been trying to widen the trade basket to include manufactured goods, fruits, and vegetables. This effort might be severely hit because goods from ASEAN nations will now cost much less to the Chinese consumer.

Numerical Example of Trade Creation and Diversion

| TABLE 11-1	Cost of Importing an Automobile Part

This table shows the cost to the United States of purchasing an automobile part from various source countries, with and without tariffs. If there is a 20% tariff on all countries, then it would be cheapest for the United States to buy the auto part from itself (for $22). But when the tariff is eliminated on Mexico after NAFTA, then the U.S. would instead buy from that country (for $20), which illustrates the idea of trade creation. If instead we start with a 10% tariff on all countries, then it would be cheapest for the U.S. to buy from Asia (for $20.90). When the tariff on Mexico is eliminated under NAFTA, then the U.S. would instead buy there (for $20), illustrating the idea of trade diversion.

	U.S. Tariff		
	0%	10%	20%
From Mexico, before NAFTA	$20	$22	$24
From Asia, before NAFTA	$19	$20.90	$22.80
From Mexico, after NAFTA	$20	$20	$20
From Asia, after NAFTA	$19	$20.90	$22.80
From the United States	$22	$22	$22

Trade Diversion in a Graph
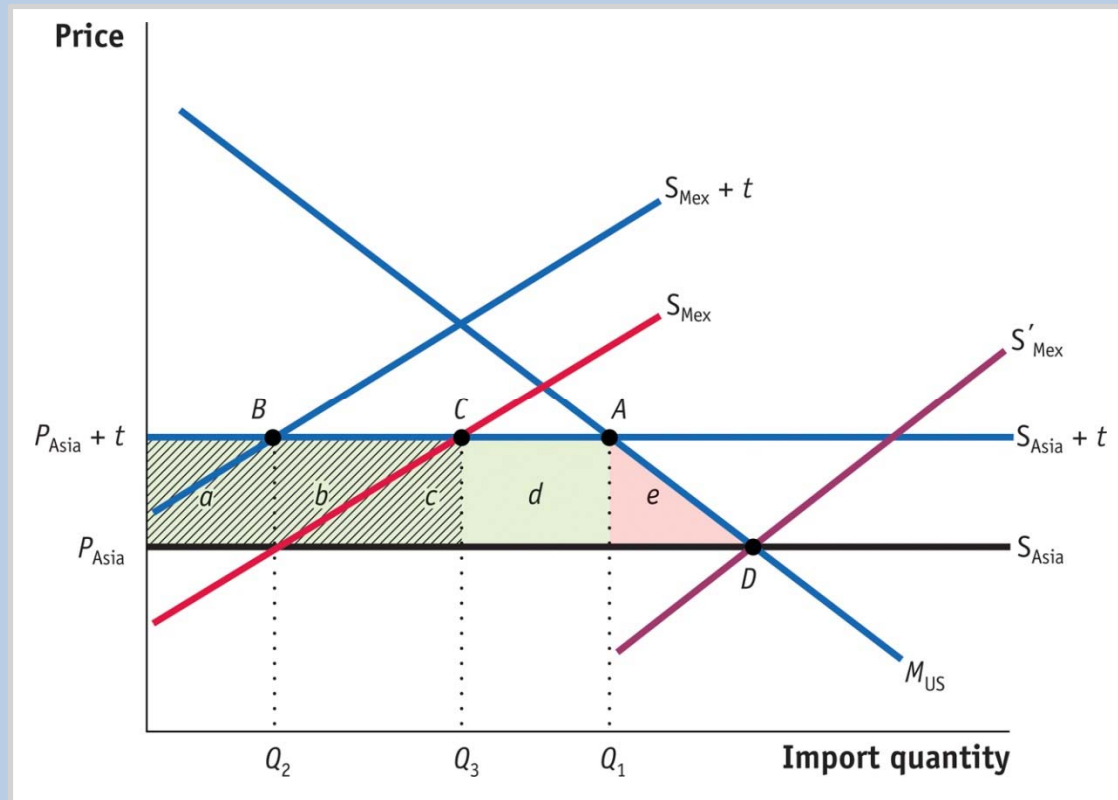

FIGURE 11-3 (1 of 2) Trade Diversion
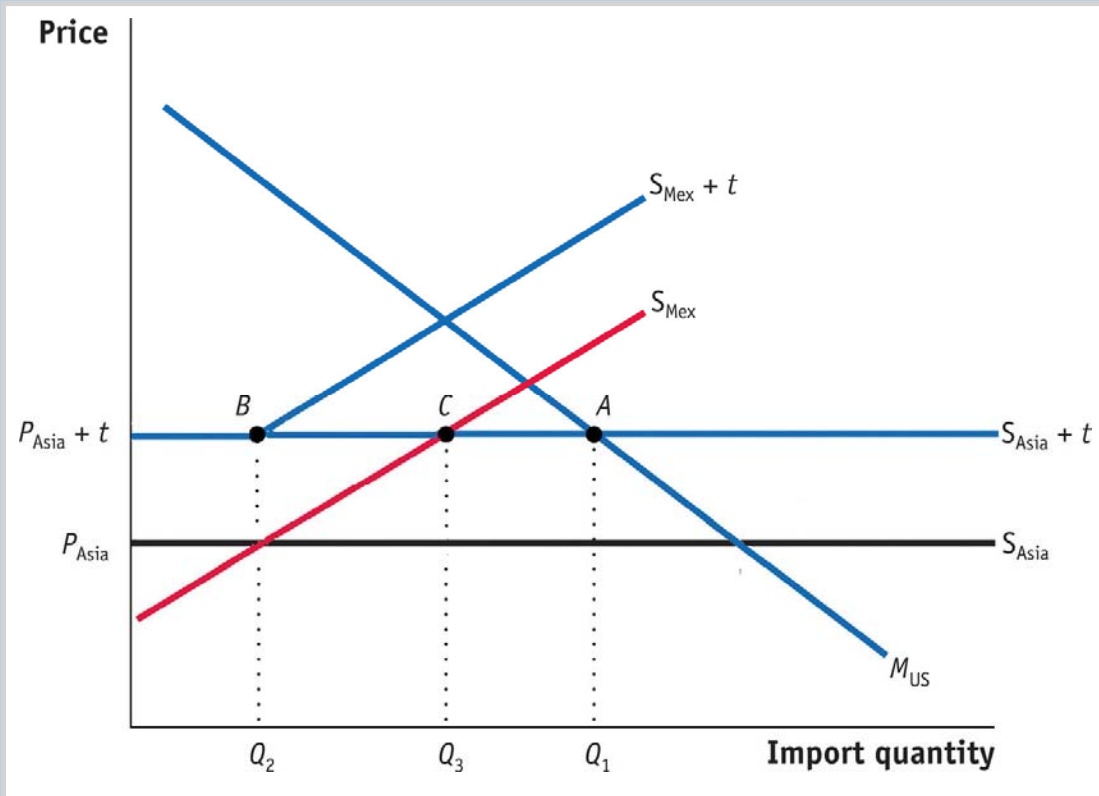
With Mexico and Asia facing the same tariff of t for sales into the United States, the equilibrium is at A with the quantity Q_2 exported by Mexico and the remainder exported by Asia at a price of $P_{Asia} + t$.

Trade Diversion in a Graph

FIGURE 11-3 (2 of 2)   Trade Diversion (continued)

U.S. tariff revenue is the area $(a + b + c + d)$.

Eliminating the tariff with Mexico under NAFTA leads to an expansion of Mexican exports to Q_3.

The United States loses the tariff revenue $(a + b + c)$, which is the U.S. loss as a result of trade diversion from Asia to Mexico.

Loss in U.S. tariff revenue: $- (a + b + c)$
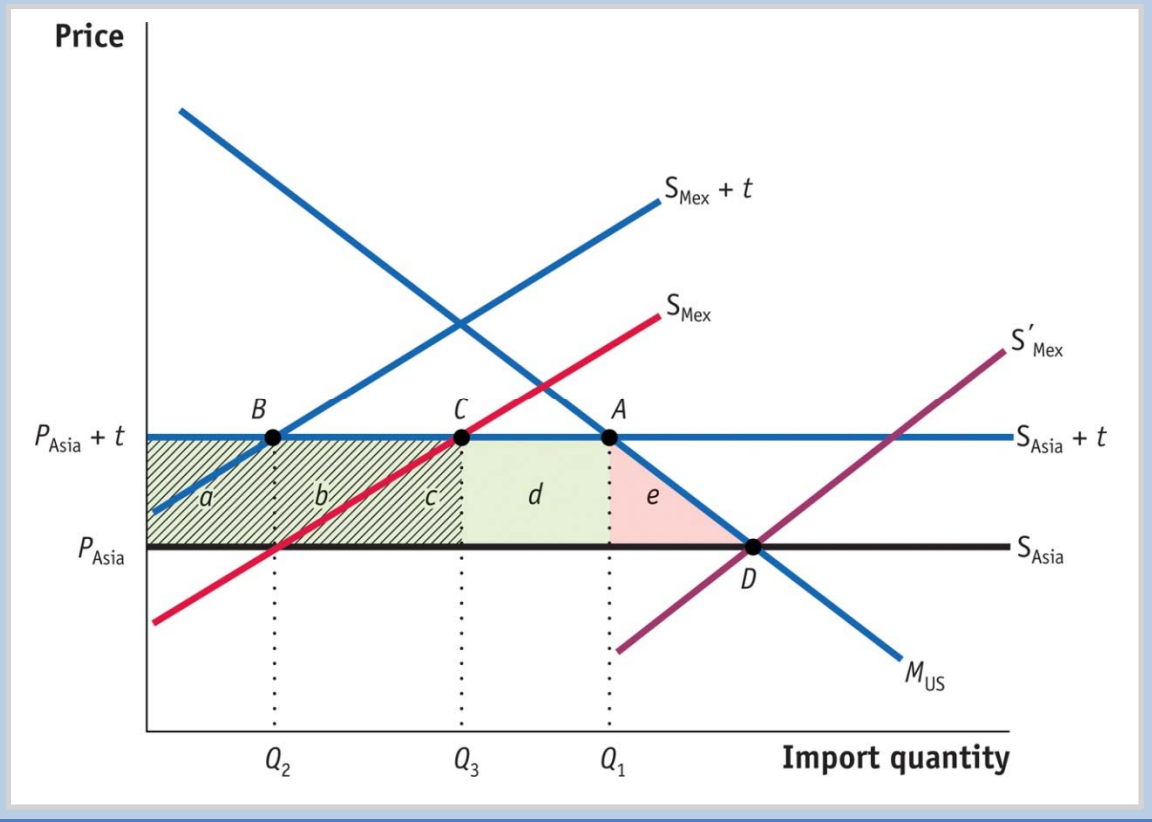
Gain in Mexico's producer surplus: $+ (a + b)$

Combined effect due to NAFTA: $- c$

Trade Diversion in a Graph

FIGURE 11-3 (revisited)

Not All Trade Diversion Creates a Loss

Suppose that after joining NAFTA, Mexico has considerable investment in the auto parts industry, and its supply curve shifts to S'_{Mex} rather than S_{Mex}.

Then equilibrium imports to the United States will occur at point D, at the price P_{Asia}, and Mexico will *fully* replace Asia as a supplier of auto parts.

Gain in consumer surplus: $+ (a + b + c + d + e)$

Loss in tariff revenue: $- (a + b + c + d)$

Net effect on U.S. welfare: $+ e$

APPLICATION

Trade Creation and Diversion for Canada

The effect of free-trade agreements on Canadian manufacturing industries can be measured by the difference between trade created and trade diverted:

$$80\% \times 54\% - 20\% \times 40\% = 35\% > 0.$$

| Share of U.S. imports | Increase in U.S. imports | Share of other imports | Decrease in other imports |

Because this calculation is positive we conclude that trade creation exceeded trade diversion. Therefore, Canada definitely gained from the free-trade agreement with the United States