Governments restrict international trade to protect domestic producers from competition.

Governments use four sets of tools:

- Tariffs
- Import quotas
- Other import barriers
- Export subsidies
Figure 7.1(a) shows Canadian demand and Canadian supply with no international trade.

The price of a T-shirt at $8.

Canadian firms produce 4 million T-shirts a year and Canadian consumers buy 4 million T-shirts a year.

(a) Equilibrium with no international trade
How Global Markets Work

Figure 7.1(b) shows the market in Canada with international trade. World demand and world supply of T-shirts determine the world price of a T-shirt at $5. The world price is less than $8, so the rest of the world has a comparative advantage in producing T-shirts.

(b) Equilibrium in a market with imports
How Global Markets Work

With international trade, the price of a T-shirt in Canada falls to $5.

At $5 a T-shirt, Canadian garment makers produce 2 million T-shirts a year.

At $5 a T-shirt, Canadians buy 6 million T-shirts a year.

Canada imports 4 million T-shirts a year.
International Trade Restrictions

Tariffs

A tariff is a tax on a good that is imposed by the importing country when an imported good crosses its international boundary.

For example, the government of India imposes a 100 percent tariff on wine imported from Canada.

So when an Indian wine merchant imports a $10 bottle of Ontario wine, he pays the Indian government $10 import duty.
International Trade Restrictions

The Effects of a Tariff

With free international trade, the world price of a T-shirt is $5 and Canada imports 4 million T-shirts a year.

Imagine that Canada imposes a tariff of $2 on each T-shirt imported.

The price of a T-shirt in Canada rises by $2.

Figure 7.5 shows the effect of the tariff on the market for T-shirts in Canada.
Figure 7.5(a) shows the market before the government imposes the tariff.

The world price of a T-shirt is $5.

With free international trade, Canada imports 4 million T-shirts a year.
Figure 7.5(b) shows the effect of a tariff on imports. The tariff of $2 raises the price in Canada to $7. Canadian imports decrease to 1 million a year. Canadian government collects the tax revenue of $2 million a year.
Winners, Losers, and Social Loss from a Tariff

When the Canadian government imposes a tariff on imported T-shirts:

- Canadian consumers of T-shirts lose.
- Canadian producers of T-shirts gain.
- Canadian consumers lose more than Canadian producers gain.
- Society loses: a deadweight loss arises.
International Trade Restrictions

Canadian Consumers of T-shirts Lose

Canadian buyers of T-shirts now pay a higher price (the world price plus the tariff), so they buy fewer T-shirts.

The combination of a higher price and a smaller quantity bought decreases consumer surplus.

The loss of consumer surplus is the loss to Canadian consumers from the tariff.
Canadian Producers of T-shirts Gain

Canadian garment makers can now sell T-shirts for a higher price (the world price plus the tariff), so they produce more T-shirts.

But the marginal cost of producing a T-shirt is less than the higher price, so the producer surplus increases.

The increased producer surplus is the gain to Canadian garment makers from the tariff.
Canadian Consumers Lose More than Canadian Producers Gain

Consumer surplus decreases and producer surplus increases.

Which changes by more?

Figure 7.6 illustrates the change in total surplus.
Figure 7.6(a) shows the total surplus with free international trade.
- The world price
- Imports
- Consumer surplus
- Producer surplus
- The gains from free trade
Total surplus is maximized.
Figure 7.6(b) shows the winners and losers from a tariff.

The $2 tariff is added to the world price, which increases the price in Canada to $7.

The quantity of T-shirts produced in Canada increases and the quantity bought in Canada decreases.
International Trade Restrictions

Consumer surplus shrinks to the green area.

Producer surplus expands to the blue area.

Area $B$ is a transfer from consumer surplus to producer surplus.

Imports decrease.

Tariff revenue equals area $D$: Imports of T-shirts multiplied by $2$. 
Society Loses: A deadweight Loss Arises

Some of the loss of consumer surplus is transferred to producers and some is transferred to the government as tariff revenue.

But the increase in production costs and the loss from decreased imports is a social loss.
International Trade Restrictions

The cost of producing a T-shirt in Canada increases and creates a social loss shown by area $C$.

The decrease in the quantity of imported T-shirts creates a social loss shown by area $E$.

The tariff creates a social loss (deadweight loss) equal to area $C + E$. 

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Import Quotas

An **import quota** is a restriction that limits the maximum quantity of a good that may be imported in a given period.

For example, Canada imposes import quotas on food products such as meat, eggs, and dairy products and manufactures such as steel.
Figure 7.7(a) shows the market before the government imposes an import quota on T-shirts. The world price is $5 and Canada imports 4 million T-shirts a year.
International Trade Restrictions

Figure 7.7(b) shows the market with an import quota of 1 million T-shirts.

With the quota, the supply of T-shirts in Canada becomes $S + quota$.

The price rises to $7.

The quantity produced in Canada increases and the quantity bought decreases.

Imports decrease.
International Trade Restrictions

Winners, Losers, and Social Loss from an Import Quota

When the Canadian government imposes an import tariff on imported T-shirts:

- Canadian consumers of T-shirts lose.
- Canadian producers of T-shirts gain.
- Importers of T-shirts gain.
- Society loses: a deadweight loss arises.

Figure 7.8 illustrates the winners and losers with an import quota.
Figure 7.8(a) shows the total surplus with free international trade. Total surplus is maximized.
The import quota raises the price of a T-shirt to $7 and decreases imports.

Area $B$ is transferred from consumer surplus to producer surplus.

Importers’ profit is the sum of the two areas $D$.

The area $C + E$ is the loss of total surplus—a deadweight loss created by the quota.
International Trade Restrictions

Other Import Barriers

Thousands of detailed health, safety, and other regulations restrict international trade.

Export Subsidies

An export subsidy is a payment made by the government to a domestic producer of an exported good.

Export subsidies bring gains to domestic producers, but they result in overproduction in the domestic economy and underproduction in the rest of the world and so create a deadweight loss.
The Case Against Protection

Despite the fact that free trade promotes prosperity for all countries, trade is restricted.

Two classical arguments for restricting international trade are

- The infant-industry argument
- The dumping argument
The Infant-Industry Argument

The **infant-industry argument** is that it is necessary to protect a new industry from import competition to enable it to grow into a mature industry that can compete in world markets.

This argument is based on the concept of *dynamic competitive advantage*, which can arise from *learning-by-doing*.

Learning-by-doing is a powerful engine of productivity growth, but this fact does not justify protection.
The Dumping Argument

Dumping occurs when a foreign firm sells its exports at a lower price than its cost of production.

This argument does not justify protection because

1. It is virtually impossible to determine a firm’s costs.

2. Hard to think of a global monopoly, so even if all domestic firms are driven out, alternatives would still exist.

3. If the market is truly a global monopoly, better to regulate it rather than restrict trade.
Other common arguments for protection are that it

- Saves jobs.
- Allows us to compete with cheap foreign labour.
- Penalizes lax environmental standards.
- Prevents rich countries from exploiting developing countries.
The Case Against Protection

Saves Jobs

The idea that buying foreign goods costs domestic jobs is wrong.

Free trade destroys some jobs and creates other better jobs.

Free trade also increases foreign incomes and enables foreigners to buy more domestic production.

Protection to save particular jobs is very costly.
The idea that a high-wage country cannot compete with a low-wage country is wrong.

Low-wage labour is less productive than high-wage labour.

And wages and productivity tell us nothing about the source of gains from trade, which is comparative advantage.
The Case Against Protection

Penalizes Lax Environmental Standards

The idea that protection is good for the environment is wrong.

Free trade increases incomes and poor countries have lower environmental standards than rich countries.

These countries cannot afford to spend as much on the environment as a rich country can and sometimes they have a comparative advantage at doing “dirty” work, which helps the global environment achieve higher environmental standards.
The Case Against Protection

Prevents Rich Countries from Exploiting Developing Countries

By trading with people in poor countries, we increase the demand for the goods that these countries produce and increase the demand for their labour.

The increase in the demand for labour raises their wage rate.

Trade can expand the opportunities and increase the incomes of people in poor countries.
The Case Against Protection

Offshore Outsourcing

A firm in Canada can obtain the things it sells in four ways:

- Hire Canadian labour and produce in Canada.
- Hire foreign labour and produce in another country.
- Buy finished goods, components, or services from firms in Canada.
- Buy finished goods, components, or services from firms in other countries.
Outsourcing occurs when a firm in Canada buys finished goods, components or services from firms in Canada or buys finished goods, components, or services from firms in other countries.

Offshoring occurs when a firm in Canada hires foreign labour and produces in other countries or buys finished goods, components, or services from firms in other countries.

Offshoring outsourcing occurs when a firm in Canada buys finished goods, components, or services from firms in other countries.
Why Is International Trade Restricted?

The key reason why international trade restrictions are popular Canada and most other developed countries is an activity called rent seeking.

Rent seeking is lobbying and other political activity that seeks to capture the gains from trade.

You’ve seen that free trade benefits consumers but shrinks the producer surplus of firms that compete in markets with imports.
The Case Against Protection

Those who gain from free trade are the millions of consumers of low-cost imports. But the benefit per individual consumer is small. Those who lose are the producers of import-competing items. Compared to the millions of consumers, there are only a few thousand producers. These producers have a strong incentive to incur the expense of lobbying for a tariff and against free trade. The gain from free trade for any one person is too small for that person to spend much time or money on a political organization to lobby for free trade.
The Case Against Protection

Each group weighs benefits against costs and chooses the best action for themselves.

But the group against free trade will undertake more political lobbying than will the group for free trade.
Possibilities, Preferences, and Choices
You buy your music online and play it on an iPod.

As the prices of a music download and an iPod have tumbled, the volume of downloads and sales of iPods have skyrocketed.

Dramatic changes have occurred in the way we spend our time.

The average workweek has fallen steadily from 70 hours a week in the nineteenth century to 35 hours a week today.

While the average workweek is now much shorter than it once was, far more people now have jobs.

Why has the average workweek declined?
Consumption Possibilities

Household consumption choices are constrained by its income and the prices of the goods and services available. The budget line describes the limits to the household’s consumption choices.
Consumption Possibilities

Figure 9.1 shows Lisa’s budget line. Divisible goods can be bought in any quantity along the budget line (gasoline, for example).

Indivisible goods must be bought in whole units at the points marked (movies, for example).
Consumption Possibilities

The budget line is a constraint on Lisa’s choices.
Lisa can afford any point on her budget line or inside it.
Lisa cannot afford any point outside her budget line.
Consumption Possibilities

The Budget Equation
We can describe the budget line by using a budget equation.

The budget equation states that

\[ \text{Expenditure} = \text{Income} \]

Call the price of pop \( P_P \), the quantity of pop \( Q_P \), the price of a movie \( P_M \), the quantity of movies \( Q_M \), and income \( Y \).

Lisa’s budget equation is:

\[ P_P Q_P + P_M Q_M = Y. \]
A household’s real income is the income expressed as a quantity of goods the household can afford to buy.

Lisa’s *real income* in terms of pop is the point on her budget line where it meets the *y*-axis.

A relative price is the price of one good divided by the price of another good.

*Relative price* is the magnitude of the slope of the budget line.

The relative price shows how many cases of pop must be forgone to see an additional movie.
A Change in Prices

A rise in the price of the good on the $x$-axis decreases the affordable quantity of that good and increases the slope of the budget line.

Figure 9.2(a) shows the rotation of a budget line after a change in the relative price of movies.
Consumption Possibilities

A Change in Income

An change in money income brings a parallel shift of the budget line. The slope of the budget line doesn’t change because the relative price doesn’t change.

Figure 9.2(b) shows the effect of a fall in income.

(b) A change in income
An **indifference curve** is a line that shows combinations of goods among which a consumer is *indifferent*.

Figure 9.3(a) illustrates a consumer’s indifference curve.

At point $C$, Lisa sees 2 movies and drinks 6 cases of pop a month.

(a) An indifference curve
Lisa can sort all possible combinations of goods into three groups: preferred, not preferred, and just as good as point $C$.

An indifference curve joins all those points that Lisa says are just as good as $C$. $G$ is such a point. Lisa is indifferent between point $C$ and point $G$. 
Preferences and Indifference Curves

All the points on the indifference curve are preferred to all the points below the indifference curve.

And all the points above the indifference curve are preferred to all the points on the indifference curve.
A preference map is a series of indifference curves.

Call the indifference curve that we’ve just seen $I_1$.

$I_0$ is an indifference curve below $I_1$.

Lisa prefers any point on $I_1$ to any point on $I_0$. 

(b) Lisa’s preference map
$I_2$ is an indifference curve above $I_1$.

Lisa prefers any point on $I_2$ to any point on $I_1$.

For example, Lisa prefers point $J$ to either point $C$ or point $G$. 

(b) Lisa's preference map
Marginal Rate of Substitution

The marginal rate of substitution, \( MRS \), measures the rate at which a person is willing to give up good \( y \) to get an additional unit of good \( x \) while at the same time remain indifferent (remain on the same indifference curve).

The magnitude of the slope of the indifference curve measures the marginal rate of substitution.
Preferences and Indifference Curves

- If the indifference curve is relatively *steep*, the $MRS$ is high.
  In this case, the person is willing to give up a large quantity of $y$ to get a bit more $x$.

- If the indifference curve is relatively *flat*, the $MRS$ is low.
  In this case, the person is willing to give up a small quantity of $y$ to get more $x$. 
Preferences and Indifference Curves

A diminishing marginal rate of substitution is the key assumption of consumer theory.

A **diminishing marginal rate of substitution** is a general tendency for a person to be willing to give up less of good $y$ to get one more unit of good $x$, while at the same time remain indifferent as the quantity of good $x$ increases.
Preferences and Indifference Curves

Figure 9.4 shows the diminishing $MRS$ of movies for pop.

At point $C$, Lisa is willing to give up 2 cases of pop to see one more movie—her $MRS$ is 2.

At point $G$, Lisa is willing to give up 1/2 case of pop to see one more movie—her $MRS$ is 1/2.
Preferences and Indifference Curves

Degree of Substitutability

The shape of the indifference curves reveals the degree of substitutability between two goods.

Figure 9.5 shows the indifference curves for ordinary goods, perfects substitutes, and perfect complements.
Predicting Consumer Choices

Best Affordable Choice

The consumer’s best affordable choice is

- On the budget line
- On the highest attainable indifference curve
- Has a marginal rate of substitution between the two goods equal to the relative price of the two goods
Predicting Consumer Choices

Here, the best affordable point is C.

Lisa can afford to consume more pop and see fewer movies at point F.

And she can afford to see more movies and consume less pop at point H.

But she is indifferent between F, I, and H and she prefers C to I.
At point $F$, Lisa’s $MRS$ is greater than the relative price.

At point $H$, Lisa’s $MRS$ is less than the relative price.

At point $C$, Lisa’s $MRS$ is equal to the relative price.
The price of a movie then falls to $4.

The budget line rotates outward.

Lisa’s best affordable point is now \( J \) in part (a).

In part (b), Lisa moves to point \( B \), which is a movement along her demand curve for movies.
A Change in Income

The effect of a change in income on the quantity of a good consumed is called the **income effect**.

Figure 9.8 illustrates the effect of a decrease in Lisa’s income. Initially, Lisa consumes at point $J$ in part (a) and at point $B$ on demand curve $D_0$ in part (b).
Lisa’s income decreases and her budget line shifts leftward in part (a).

Her new best affordable point is $K$ in part (a).

Her demand for movies decreases, shown by a leftward shift of her demand curve for movies in part (b).
Predicting Consumer Choices

Substitution Effect and Income Effect

For a normal good, a fall in price *always* increases the quantity consumed.

We can prove this assertion by dividing the price effect in two parts:

- Substitution effect
- Income effect
Initially, Lisa has an income of $40, the price of a movie is $8, and she consumes at point C.

The price of a movie falls from $8 to $4 and her budget line rotates outward. Lisa’s best affordable point is now J.

The move from point C to point J is the price effect.
We’re going to break the move from point $C$ to point $J$ into two parts. The first part is the substitution effect and the second is the income effect.
Substitution Effect

The **substitution effect** is the effect of a change in price on the quantity bought when the consumer remains on the same indifferent curve.
The direction of the substitution effect never varies:
When the relative price falls, the consumer always substitutes more of that good for other goods.
The substitution effect is the first reason why the demand curve slopes downward.

(b) Substitution effect and income effect
Income Effect

To isolate the income effect, we reverse the hypothetical pay cut and restore Lisa’s income to its original level (its actual level).

Lisa is now back on indifference curve $I_2$ and her best affordable point is $J$.

The move from $K$ to $J$ is the income effect.
For Lisa, movies are a normal good.

With more income to spend, she sees more movies—the income effect is positive.

For a normal good, the income effect *reinforces* the substitution effect and is the second reason why the demand curve slopes downward.
Predicting Consumer Choices

Inferior Goods

For an inferior good, when income increases, the quantity bought decreases.

The income effect is negative and works against the substitution effect.

So long as the substitution effect dominates, the demand curve still slopes downward.
If the negative income effect is stronger than the substitution effect, a lower price for inferior goods brings a decrease in the quantity demanded—the demand curve slopes upward!

This case does not appear to occur in the real world.
Some review questions
Which of the following is a typical effect of a price ceiling set below the equilibrium price?

A. Less of the good is produced with the ceiling than would be produced without the ceiling.
B. The price ceiling has no effect on the market equilibrium.
C. Consumers can buy more than they can at the equilibrium price because the ceiling price is lower.
D. None of the above answers is correct.
With rent controls, what mechanism might arise to bring about an equilibrium?

A. decreased search costs  
B. black market activity  
C. increased advertising by landlords  
D. more favorable leases offered to tenants
If a minimum wage is set above the equilibrium wage rate, employment

A. will increase.
B. will not change.
C. will decrease.
D. may increase, decrease or not change depending on how the supply of labor is affected by the minimum wage.
The minimum wage in 1950’s was 75 cents until March 1956 when it was raised to $1. If the minimum wage in the early 1950’s was set below the equilibrium wage and the increased wage was above the equilibrium wage, what is true?

A. The firms’ producer surplus is greater in the early 1950’s
B. Unemployment is greater in the early 1950’s
C. Deadweight loss is greater in the early 1950’s
D. Potential loss from job search was greater in the early 1950’s
If a tax is imposed on buyers in a market in which supply is perfectly inelastic, the

A. buyers pay the entire tax.
B. sellers pay the entire tax.
C. buyers and the sellers both pay a portion of the tax.
D. neither the buyers nor the sellers pay the tax.
“The tax on insulin in the Philippines is anywhere between 10 and 20 percent. If you are rich and living in the Philippines, this is not a problem, but if you are poor, then insulin becomes something that you cannot afford.” Why do buyers care so much about a tax on insulin, a vital daily medicine for those with diabetes?

A. Because buyers pay virtually the entire tax on insulin because the demand is almost perfectly inelastic
B. Because sellers increase their profit when there is a tax
C. Because more insulin can be provided to those in need
D. Because the tax incidence is equal between the buyers and sellers
If a production quota is set below the equilibrium quantity, at the quota quantity, marginal benefit is ________ marginal cost and the level of production is ________.

A. greater than; inefficient
B. greater than; efficient
C. less than; inefficient
D. equal to; efficient
Due to steeply rising metal prices, the current cost of manufacturing a penny, 1.26 cents, is above the coin’s face value. There were almost 2.7 billion pennies produced by the U.S. Mint from January through June 2008. These pennies with a combined $27 million face value actually cost over $34 million to produce. Is there a price ceiling on pennies? If not, what other kind of government action is taking place in the market for pennies?

A. No; the government subsidizes penny production
B. Yes, there is a price ceiling on pennies
C. No; the government gives a tax credit for penny production
D. No; there is a price floor on penny production
If penalties for trading illegal drugs are instituted on both buyers and sellers, the

A. quantity might increase or decrease but the price will rise.
B. price might rise or fall, but the quantity will decrease.
C. price and the quantity will both decrease.
D. price and the quantity will both increase.
Rather than prohibiting a good or service, the government might tax it. Imposing such a tax on a good or service _________ the equilibrium price and _________ the equilibrium quantity.

A. raises; increases
B. raises; decreases
C. lowers; increases
D. lowers; decreases
Which of the following is correct?

A. Both imports and exports include goods and services.
B. Imports includes both goods and services but exports includes only goods.
C. Imports includes only goods but exports includes both goods and services.
D. Both exports and imports include goods and neither includes services.
When the principle of comparative advantage is used to guide trade, then a country will specialize by producing only

A. goods with the highest opportunity cost.
B. goods with the lowest opportunity costs.
C. goods for which production takes fewer worker-hour than another country.
D. goods for which production costs are more than average total costs.
The United States decides to follow its comparative advantage and specialize in the production of airplanes. Which of the following will occur?

A. more airplanes will be produced in the United States

B. there will be no change in the price of airplanes in the United States

C. the world price of airplanes will increase

D. the quantity of airplanes demanded in the United States will increase
Which of the following statements is true?

A. International trade raises wages in developing countries.

B. International trade with reach industrial countries forces people in the developing countries to work for lower wages.

C. International trade leads to job losses in both import competing industries and exporting industries.

D. Unlike other types of international trade, offshoring does not bring any gains from trade.
The most efficient way to encourage the growth of an infant-industry is through a

A. voluntary export restraint.
B. tariff.
C. subsidy.
D. an import quota.
When a foreign firm sells its exports at a lower price than its cost of production, the firm is
A. imposing an economies of scale cost.
B. dumping.
C. avoiding a tariff.
D. competing in an infant industry.
A U.S. tariff imposed on items that can be produced more cheaply abroad

A. benefits Americans by making these goods cheaper.
B. makes the goods more expensive in foreign markets.
C. creates a deadweight loss.
D. equalizes the cost of production between the United States and foreign producers.
Since 1930, tariff levels in the United States have

A. generally declined.
B. steadily risen.
C. increased during expansions.
D. decreased during recessions.
When a firm “dumps” some of its products in another country, it

A. creates an environmental hazard in the receiving country.
B. sells its products abroad at a price lower than it costs to produce the goods.
C. increases the total level of employment in the receiving country.
D. is specializing according to comparative advantage.
Some observers opposing free trade argue that when we buy shoes from Brazil or shirts from Taiwan, U.S. workers lose their jobs. The fact of the matter is that

A. no U.S. worker has actually lost a job because of free trade.
B. most jobs lost because of free trade pay less than the poverty level.
C. free trade creates jobs in export industries.
D. the jobs lost are concentrated in restricted geographic areas.