



# Tariffs

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## Section

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A **tariff** refers to a tax levied per unit on the price of imported goods and services. A country may choose to levy a tariff to protect a domestic industry.



Glossary

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## Why do countries use tariffs?

In 2018, the US government used tariffs to protect domestic industries in the steel and aluminium markets. The government announced that it was adding a 25 per cent tariff on steel and a 10 per cent tariff on all aluminium imports. This means that when foreign producers export steel to the USA, a payment of 25 per cent of the value of the steel is made to the US government.

### Activity

There are many reasons why countries levy tariffs. It may be to protect domestic industries, raise government revenue or, in the case of Japanese rice, protect an industry of cultural value.

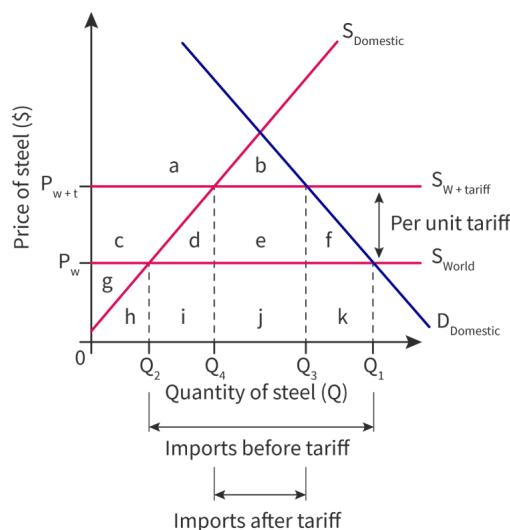
Research the tariffs in your home country and answer the following questions.

1. Which goods or services are subject to tariffs?
2. Why do you think those products attract tariffs?

## The effects of tariffs



A tariff is an effective tool to protect domestic industry. As a result of the tariff, domestic producers of steel do not have to pay the tariff and are given a competitive advantage. We will now explore the effects of the tariff on the US domestic steel industry using the diagram in **Figure 1**.



**Figure 1.** The effects of a tariff on the domestic market for steel.



The diagram illustrates the effects of a tariff on the domestic steel market by showing supply and demand curves and the impact of the tariff. The x-axis represents the quantity of steel ( $Q$ ) while the y-axis represents the price of steel (\$).

Three supply curves are depicted: -  $S_{\text{World}}$ , indicating the world supply with no tariff. -  $S_{\text{World} + \text{tariff}}$ , showing the world supply with the tariff added. -  $S_{\text{Domestic}}$ , representing domestic supply.

The demand curve is marked as  $D_{\text{Domestic}}$ . Key numerical values along the quantity axis include points at 0,  $Q_2$ ,  $Q_3$ ,  $Q_4$ , and  $Q_1$ .

The initial world price level ( $P_w$ ) is shown, which is lower than the price level with the tariff ( $P_w + t$ ), indicating the increase in price due to the tariff.

Intersecting lines and shaded areas (a, b, c, d, e, f, g, h, i, j, k) represent changes in domestic consumption, production, and imports. Areas labeled c, d, e, and f denote the deadweight loss and redistributions caused by the tariff. The space between points  $Q_2$  and  $Q_1$  indicates the amount imported before the tariff, while  $Q_3$  to  $Q_2$  marks imports after the tariff is applied.

Overall, the diagram emphasizes the higher prices and lower imports due to the tariff, effectively protecting domestic producers by decreasing foreign competition.

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**Figure 1** shows the effects of the tariff on the steel industry in the USA. Under free trade,  $Q_1 - 0$  refers to the amount of steel that would be consumed in the USA at price  $P_w$ . However,  $P_w$  is such a low price that US steel makers are only prepared to produce  $Q_2 - 0$  amount of steel. Hence  $(Q_1 - Q_2)$  amount of steel is imported.

In an effort to support the local steel industry, the US government will levy a 25 per cent tariff and shift up the supply curve to  $S_{w+\text{tariff}}$ . The tariff will increase the price from  $P_w$  to  $P_{w+t}$ . At this higher price, the US industries that produce goods from steel (such as car manufacturers) will buy less steel, moving from  $Q_1$  to  $Q_3$ . The higher price will induce US steel manufacturers to produce more steel, moving from  $Q_2$  to  $Q_4$ . Overall, imports will fall from  $Q_1 - Q_2$  to  $Q_3 - Q_4$ .



### ① Exam tip

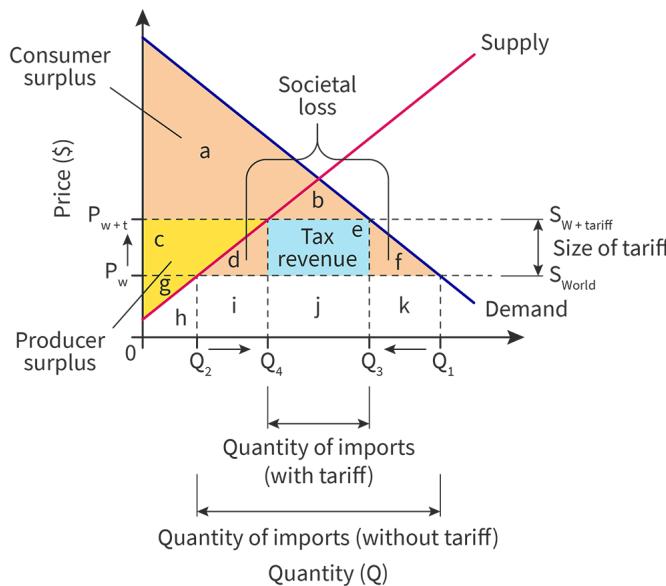
It is common for students to lose marks for this diagram because they label the supply curve  $P_w$  and  $P_{w+t}$ , rather than  $S_w$  and  $S_{w+\text{tariff}}$ . The P labels belong along the y-axis on the left.

## Effects of tariffs on stakeholders

Tariffs will have significant effects on a range of stakeholders involved in the trade, which is illustrated by **Figure 2**. Using the US tariffs on steel as an example, the affected stakeholders are:

- **Domestic producers:** Producers of steel in the US will benefit overall from this tariff. Prior to the tariff, they were only providing a volume of  $Q_2$  to the total market. Multiplied by the price  $P_w$ , this would give them a revenue of area  $g + h$  only. After the tariff is brought in, the price increase causes a movement along the domestic supply curve, giving producers the opportunity to produce more. Therefore, revenue increases to area  $c + d + g + h + i$ .  
Producer surplus increases from  $g$  to  $c + g$ .
- **Foreign producers:** Steel producers abroad will suffer as a result of the tariff. Revenues will fall from  $i + j + k$  to  $j$  only.

- **Consumers:** Consumers will also end up negatively affected by the tariff. They will pay higher prices from  $P_w$  to  $P_{w+t}$ , and consumption will fall from  $Q_1$  to  $Q_3$ .



**Figure 2.** Consumer surplus is the area under the demand curve, and above the market price.

[More information for figure 2](#)

The image is a graph that illustrates consumer and producer surplus in relation to market equilibrium and tax revenue. The X-axis represents the quantity of goods, and the Y-axis represents the price level.

There is a downward-sloping demand curve and an upward-sloping supply curve, intersecting to form the market equilibrium.

The area labeled 'a' denotes the consumer surplus, situated above the market price and below the demand curve. The area labeled 'b' shows parts of the surplus shifts due to changes in price or taxes.

A section labeled 'Tax revenue' is visible between the supply and demand curves, indicating the government's tax income from the imposed tax. The position is below the equilibrium point and above a new price level.

Student view

The components c, d, e, f, g, relate to shifts in consumer and producer surpluses when taxes are applied, demonstrating reduced surplus areas. The text 'Tax revenue' is directly included within the shaded section highlighting government revenue affected by tax policies.

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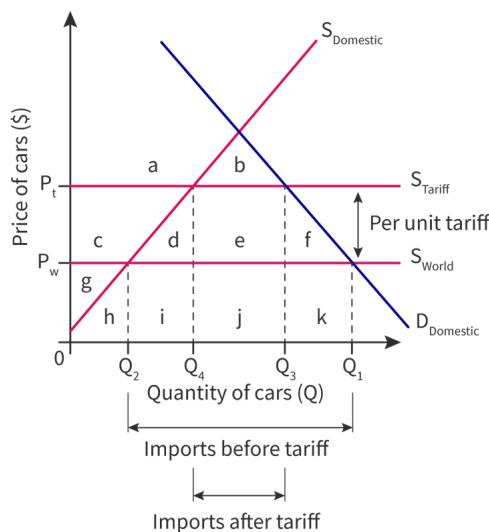
The sum of consumer expenditure rises from  $g + h + i + j + k$  to  $c + d + e + g + h + i + j$ . In addition, consumer surplus will fall significantly from  $a + b + c + d + e + f$  to  $a + b$  only.

- **Government:** By implementing the tax, the government gives itself the opportunity to generate tax revenue. The volume of imported goods is represented by the distance between  $Q_3$  and  $Q_4$ , and the value of the tax is the vertical distance between the two curves. That gives a total tax revenue represented by the rectangle E in **Figure 1**.
- **Society:** A tariff creates welfare loss because consumers pay more and consume less (triangle f). There is also lost efficiency as resources are misallocated because some production is shifted from efficient producers in Canada, the EU and China to inefficient producers in the US. This is represented by triangle d. The sum of d and f is referred to as deadweight loss.

Overall, we can see that the lost consumer surplus was area c + d + e + f. Area C was transferred to domestic producers, and area e was transferred to the government. This left area d + f as the deadweight welfare losses of imposing the tariff.

### Worked example 1

Test your understanding of the impacts of tariffs by using **Figure 3** to help you answer the questions.



**Figure 3.** Look at the diagram carefully, and answer the questions below.

More information for figure 3

The diagram shows the effects of a tariff on the market for cars, focusing on price and quantity. The X-axis is labeled "Quantity of cars (Q)" and the Y-axis "Price of cars (\$)". The domestic supply ( $S_{\text{Domestic}}$ ) and demand ( $D_{\text{Domestic}}$ ) curves intersect at point k.

There are three horizontal lines depicting price levels: - The domestic price at  $P_t$  before tariff implementation. - The world price at  $P_w$  after the tariff imposition, with a new supply curve labeled  $S_{\text{Tariff}}$  aligning horizontally between  $P_t$  and  $P_w$ , indicating a "Per unit tariff" as the vertical difference between these prices.

Labeled sections include areas a, b, c, d, e, f, and g related to price differences and consumer surplus, and h, i, j, k which represent varying consumer and producer surplus or deadweight loss areas due to the tariff imposition.

Quantity ranges are provided as  $Q_2$  to  $Q_3$  indicating "Imports after tariff" and  $Q_3$  to  $Q_1$  showing "Imports before tariff," demonstrating the reduction in imports due to tariffs.

Supply and demand curves intersect with labeled segments to help track changes in quantity and price before and after a tariff.

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If we assume that there is free trade:

1. How many cars are:

a) imported?

b) produced domestically?



## 2. What is the:

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- a) domestic producer surplus?
- b) consumer surplus?

## 3. How much revenue do the following stakeholders earn:

- a) importers?
- b) domestic producers?

1. a)  $Q_1 - Q_2$

b)  $Q_2$

2. a) Producer surplus is the area above the supply curve and below the market price.

It is the difference between the price producers are willing to accept (supply curve) and the market price.

= Area g

b) Consumer surplus is the area below the demand curve and above the market price. It is the difference between the price consumers are willing to pay (demand curve) and the market price.

= Area a + b + c + d + e + f

3. a) Importers sell  $(Q_1 - Q_2)$  amount of cars at the world price ( $P_w$ ).

Student view

Revenue earned by importers = i + j + k.

b) Domestic producers sell  $Q_2$  amount of cars at the world price ( $P_w$ ).

Revenue earned by domestic producers = g + h.

Now, let's assume that a tariff is levied on cars.

4. After the tariff, show how many cars will be purchased.

5. After the tariff, what is the:

- a) domestic producer surplus?
- b) consumer surplus?



6. After the tariff, how much revenue do the following importers earn?

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- a) importers?
- b) domestic producers?

7. Show how much the government earns in tax revenue from the tariff.

8. What is the deadweight loss from the tariff?

4. Before the tariff,  $Q_1$  amount of cars are purchased.

After the tariff,  $Q_3$  cars are purchased.

5. a) Producer surplus is the area above the supply curve and below the new market price ( $P_{w+t}$ ).

$$= \text{Area } g + c$$

b) Consumer surplus is the area below the demand curve and above the new market price ( $P_{w+t}$ ).

$$= \text{Area } a + b$$

6. a) Importers sell ( $Q_3 - Q_4$ ) amount of cars at the market price ( $P_{w+t}$ ).

However, importers must pay the tariff area e.

Revenue earned by importers = j

Student view

b) Revenue earned by domestic producers = c + d + g + h + i

7. The government earns the value of the tariff ( $P_{w+t} - P_w$ ) for every import ( $Q_3 - Q_4$ ).

The government earns area "e" as tax revenue.

8. Area f represents welfare loss that arises from a misallocation of resources in car production. Under free trade, area f represents the number of cars that would have been produced by efficient producers from abroad. However, once the tariff is levied, area f is the amount of cars that are now produced by less efficient domestic firms.

Area d represents welfare loss to consumers. Under free trade, area d represents the additional cars that would have been consumed at a lower price. Once the tariff is levied, consumers lose area d and must consume fewer cars, and at a higher price.



The total welfare loss is equal to d + f.

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— See **Table 1** for a summary of all the effects of a tariff on stakeholders.

**Table 1.** Summary of the effects of tariffs on stakeholders.

Stakeholder	Before	After
Domestic producers	<ul style="list-style-type: none"> <li>Revenue g + h</li> <li>Producer surplus g</li> </ul>	<ul style="list-style-type: none"> <li>Revenue c + d + g + h + i</li> <li>Producer surplus c + g</li> </ul>
Foreign producers (importers)	<ul style="list-style-type: none"> <li>Revenue i + j + k</li> </ul>	<ul style="list-style-type: none"> <li>Revenue j</li> </ul>
Consumers	<ul style="list-style-type: none"> <li>More choice</li> <li>Lower prices</li> <li>Consumer surplus of a + b + c + d + e + f</li> </ul>	<ul style="list-style-type: none"> <li>Less choice</li> <li>Higher prices</li> <li>Consumer surplus of a + b only</li> </ul>
Government	<ul style="list-style-type: none"> <li>Not involved</li> </ul>	<ul style="list-style-type: none"> <li>Earns tax revenue e</li> </ul>
Society	<ul style="list-style-type: none"> <li>Efficient distribution of resources</li> </ul>	<ul style="list-style-type: none"> <li>Global misallocation of resources and welfare loss of d + f</li> </ul>

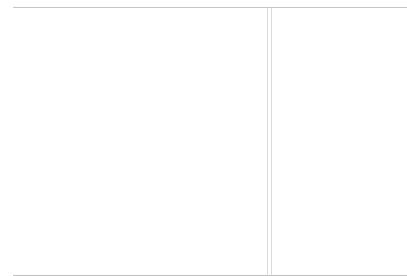
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Trade results in economies between countries becoming interdependent. They rely on one another to provide raw materials for production and markets for goods and services. If one country places a tariff on another, it can have a significant impact on its trading partner. For example, in response to US steel tariffs, China placed tariffs on US agricultural products. This hit the US farming industry hard. Bankruptcies for US farms reached its highest level in a decade. Income for farmers fell by USD 11.8 billion between January and March 2019. On 23 May 2019, the US government supported farmers with USD 16 billion in aid.

Take a look at the applet below to see how the size of the tariff affects stakeholders.

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**Figure 4.** The size of the tariff affects different stakeholders.

More information for figure 4

This interactive graph illustrates how the size of a tariff impacts different stakeholders in a market. The x-axis represents the quantity (Q), while the y-axis shows the price (\$). It features the domestic demand curve ( $D_{\text{Domestic}}$ ) and the domestic supply curve ( $S_{\text{Domestic}}$ ), as well as the world supply curve ( $S_W$ ) and the world supply curve with tariff ( $S_T$ ). These curves demonstrate the relationship between supply, demand, and tariff policies.

The graph uses color-coded areas to represent the economic effects of the tariff on stakeholders. Consumer surplus, shaded in blue, shows the welfare lost by consumers due to higher prices. Producer surplus, shaded in light orange, highlights the gains experienced by domestic producers due to increased production and prices. Tax revenue, shaded in dark orange, reflects the income earned by the government through the tariff, while deadweight loss, shaded in teal, depicts the inefficiencies created in the market.

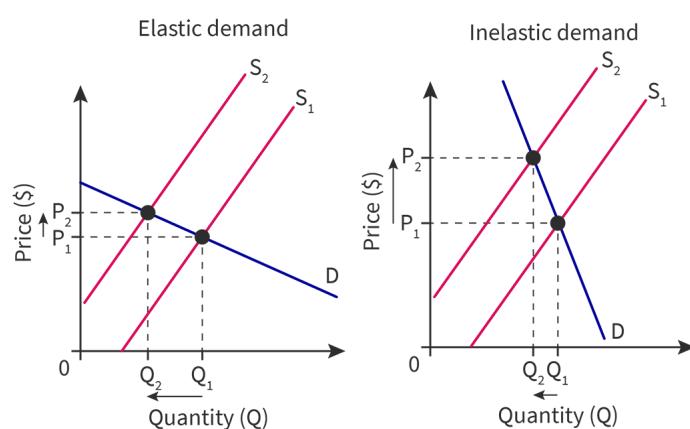
The key points  $P_W$  (initial world price under free trade),  $P_T$  (the higher price after the tariff), and quantities  $Q_1$ ,  $Q_2$ ,  $Q_3$ , and  $Q_4$  captures market dynamics. Initially, at the free trade price  $P_W$ , domestic producers supply  $Q_2$ , while domestic consumption reaches  $Q_1$ , resulting in imports equal to  $Q_1 - Q_2$ . When a tariff is imposed, the world supply curve shifts upward to  $S_T$ , increasing the price to  $P_T$ . At this higher price, domestic consumption falls from  $Q_1$  to  $Q_3$ , while domestic production rises from  $Q_2$  to  $Q_4$ , reducing imports to  $Q_3 - Q_4$ .

This visualization allows us to interact with the graph by adjusting the tariff slider, which dynamically shows changes in imports as the tariff rate increases or decreases. As the slider moves, the color-coded areas adjust, enabling us to analyze how tariffs influence prices, quantities, tax revenue, and deadweight loss.

Student view

## When are tariffs most effective?

Governments should also consider the circumstances where tariffs are most effective. Consider the two examples below: steel and life-saving drugs from India.

**Figure 5a.** A tariff placed on steel. **b.** A tariff placed on life-saving drugs.



More information for figure 5

The image consists of two graphs comparing the effects of tariffs on steel with differing demand elasticity.

**Left Graph (Elastic Demand):** - Axes: - X-axis: Quantity (Q). - Y-axis: Price (\$). - Curves and Lines: - Demand curve labeled 'D' slopes downward. - Supply curves labeled 'S1' and 'S2' slope upward. 'S2' represents the position after the tariff. - Points and Shifts: - An increase in price from P1 to P2 causes quantity demanded to fall from Q1 to Q2. - Description: - An increase in price due to the tariff leads to a proportionally larger decrease in quantity demanded, indicating elastic demand.

**Right Graph (Inelastic Demand):** - Axes: - X-axis: Quantity (Q). - Y-axis: Price (\$). - Curves and Lines: - Demand curve labeled 'D' is steep, showing low sensitivity to price changes. - Supply curves labeled 'S1' and 'S2' slope upward. 'S2' represents the position after the tariff. - Points and Shifts: - An increase in price from P1 to P2 causes a smaller decrease in quantity from Q1 to Q2. - Description: - A price increase results in a smaller proportional decrease in quantity demanded, illustrating inelastic demand.

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**Figure 5a** shows the effects of the USA placing a tariff on steel. The demand for steel in the USA is very elastic. Car producers can choose from many steel producers in China, Japan, India, Russia and even domestic production in the USA. The USA produces steel that is almost a perfect substitute for foreign steel. Hence, even a small increase in the price of imported steel will encourage car producers, bridge builders and construction companies to switch from imported to domestic steel. **Figure 5a** shows that even a small increase in price from P to P<sub>1</sub> will bring about a larger than proportionate fall in quantity demanded of steel from Q to Q<sub>1</sub>. Therefore, the tariff is very effective and imports are reduced significantly. This may be why the US government chooses to protect steel. **Figure 6** shows the top 20 steel producers from 2019.



Source: " [OECD Stats \(\[https://stats.oecd.org/Index.aspx?datasetcode=STI\\\_STEEL\\\_MAKINGCAPACITY\]\(https://stats.oecd.org/Index.aspx?datasetcode=STI\_STEEL\_MAKINGCAPACITY\)\)](https://stats.oecd.org/Index.aspx?datasetcode=STI_STEEL_MAKINGCAPACITY) "

**Figure 6.** The 20-top steel producers in the world (2017).

More information for figure 6

The image is a world map highlighting the top 20 steel producers in 2017. Each country is marked with its ranking, name, and steel production volume in millions of tonnes. China is ranked first with 1152.2 million tonnes, followed by Japan with 130.1 million tonnes, and India with 129.1 million tonnes. Other notable producers include the USA at rank 4 with 109.7 million tonnes, Russia at rank 5 with 87.0 million tonnes, South Korea at rank 6 with 81.6 million tonnes, and Germany at rank 7 with 51.9 million tonnes. The map provides a geographic distribution of steel production across different countries, illustrating how production is spread globally.



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186-cid-  
754025/ **Figure 5b** demonstrates the effects of a tariff on life-saving drugs imported from India. The demand for life-saving drugs is very inelastic. If no substitutes are produced domestically, then those with terminal illnesses will have no choice but to buy pharmaceutical imports from India. Even if a very large tariff is levied, and price increases significantly from  $P_1$  to  $P_2$ , consumers will still continue to buy the drugs. The quantity demanded will only fall slightly from  $Q_1$  to  $Q_2$ . In this case, the tariff has **not** been effective.

Tariffs are most effective if a close substitute is produced within the domestic market and therefore demand is elastic.

Complete section with 4 questions

Start questions

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4. The global economy / 4.2 Types of trade protection

# Calculating tariffs (HL)

## Section

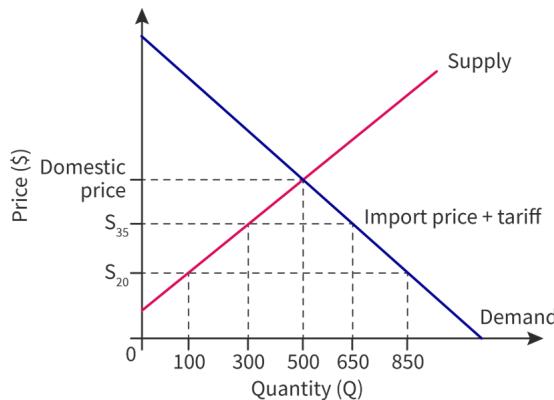
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Notebook For the Higher level course, you are required to use a diagram to calculate the effects of tariffs on stakeholders. Have a look at **Figure 1** and follow the example to show you how to do the calculation.



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**Figure 1.** The effects of a tariff on the domestic market.

More information for figure 1

The image is a graph representing the effects of a tariff on a domestic market. It contains intersecting supply and demand curves. The x-axis represents quantity (Q), ranging from 0 to 850, while the y-axis represents price in dollars (\$), marked as "Price (\$)". The supply curve is labeled as "Supply", and the demand curve is labeled as "Demand". Two lines indicate different price levels: the "Domestic price" and the "Import price + tariff". There are additional marks labeled S\_20 and S\_35 indicating specific price points on the y-axis, with the corresponding quantities marked on the x-axis.

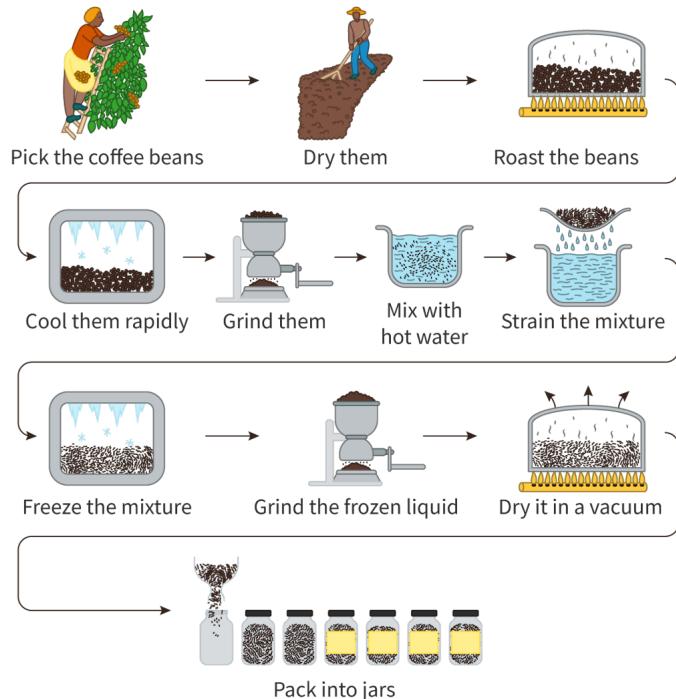
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- **Figure 1** shows you the effects of a tariff on the domestic economy. Under free trade, consumers will purchase 850 goods at USD 20 each. Consumers will spend USD 17 000 on purchasing goods ( $\text{USD } 20 \times 850$ ).
- USD 15 000 is spent on imports ( $\text{USD } 20 \times 750$ ), and USD 2000 ( $\text{USD } 20 \times 100$ ) is spent buying domestic goods.

The government may decide to impose a tariff, which increases prices from USD 20 to USD 35.

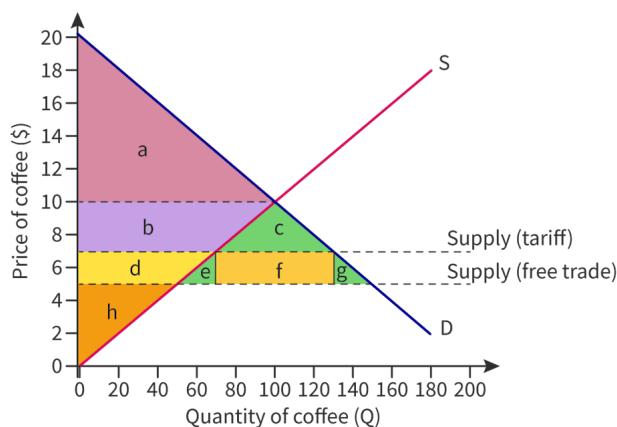
- After the tariff, consumers will spend USD 22 750 ( $\text{USD } 35 \times 650$ ) purchasing goods.
- USD 12 250 ( $\text{USD } 35 \times 350$ ) is spent on imports, and USD 10 500 ( $\text{USD } 35 \times 300$ ) is spent buying domestic goods.

For this section, we will look at the effects of a tariff on the market for coffee. The international coffee market is huge, with coffee exports estimated at USD 31.1 billion in 2018. Second only to oil, coffee is the world's second-most traded commodity. Coffee beans are used for more than just coffee. By using a decaffeination process, coffee can also produce caffeine for beverages, such as cola sodas and pharmaceuticals.

**Figure 2.** The production process of coffee.

More information for figure 2

The EU applies a 9 per cent tariff on all processed coffee. It imports *processed coffee* rather than *coffee beans* because countries in the EU do not have the climate to produce their own beans. Therefore, countries such as Germany and Switzerland import coffee beans to produce processed coffee. The purpose of the tariff is to protect the German coffee processing industry. **Figure 3** shows the effects on the EU market from a tariff on processed coffee.

**Figure 3.** A tariff is levied on process coffee by the EU.

More information for figure 3

The graph illustrates the supply and demand for processed coffee, highlighting the effects of a tariff imposed by the EU. The Y-axis represents the price of coffee in dollars, ranging from 0 to 20, while the X-axis represents the quantity of coffee in units, ranging from 0 to 200.

There are three main lines on the graph: a demand curve labeled 'D' sloping downwards from left to right, and two supply curves labeled 'Supply (free trade)' and 'Supply (tariff)'. The 'Supply (free trade)' line is below the 'Supply (tariff)' line, indicating a shift upwards when a tariff is imposed.

The area between the two supply curves, from the point where they intersect the demand curve, is divided into several segments labeled a, b, c, d, e, f, g, and h.

- Segment a is above the 'Supply (tariff)' line.



- Segment b is below segment a, between the 'Supply (tariff)' and 'Supply (free trade)' lines.
- Segment c is where the 'Supply (tariff)' and 'Supply (free trade)' lines meet the demand curve 'D'.
- Segments d, e, f, g, and h are below these curves illustrating consumer and producer surplus changes due to the tariff.

The graph shows that the imposition of the tariff increases prices and affects the quantity of coffee supplied and demanded, indicating a protective measure for domestic coffee processing industries in the EU.

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## Worked example 1

Use **Figure 3** to answer the following questions. **Before trade:**

1. What is the equilibrium price and quantity of coffee?
2. How much do consumers spend on coffee?
3. Calculate the consumer surplus.
4. How much do domestic producers earn from selling coffee?
5. Calculate the producer surplus.

1. Before trade, the equilibrium price is USD 10 and the equilibrium quantity is 100 units.

2. Consumers spend USD 1000. This is the price × quantity:

$$= \text{USD } 10 \times 100$$

$$= \text{USD } 1000$$

3. The consumer surplus is USD 500. It is the area underneath the demand curve and above the market price. It is the difference between what consumers are prepared to pay (demand curve) and what they actually pay (the market price).

$$= \text{Area A}$$

$$= (1/2 \times 100) \times 10$$

$$= \text{USD } 500$$

4. Domestic producers earn USD 1000. Their total revenue = price × quantity:

$$= \text{USD } 10 \times 100$$

$$= \text{USD } 1000$$

5. The producer surplus is USD 500. It is the area above the supply curve and below the market price. It is the difference between the price producers are willing to accept (supply curve) and the market price.

$$= \text{Area B + D + H}$$



$= (\frac{1}{2} \times 100) \times 10$

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$= \text{USD } 500$

## Worked example 2

Let's assume that the domestic economy opens its borders to **free trade**.

1. What is the new price and quantity of coffee?
2. How much do consumers spend on coffee?
3. How much do domestic producers earn from selling coffee?
4. How much do importers earn from selling coffee?
5. Calculate the consumer surplus.
6. Calculate the domestic producer surplus.

1. Free trade will allow coffee imports to freely enter the domestic market. This will drive down prices to the world price at USD 5 and increase the quantity to 150. With free trade the equilibrium price is USD 5 and the equilibrium quantity is 150 units.

2. Consumers spend USD 750. This is the price  $\times$  quantity:

$= \text{USD } 5 \times 150$

$= \text{USD } 750$

3. Domestic producers earn USD 250. Their total revenue is price  $\times$  quantity:

$= \text{USD } 5 \times 50$

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$= \text{USD } 250$

4. Importers earn USD 500. Their total revenue = price  $\times$  quantity:

$= \text{USD } 5 \times 100$

$= \text{USD } 500$

5. The consumer surplus = area A + B + C + D + E + F + G

$= (\frac{1}{2} \times 150) \times 15$

$= \text{USD } 1125$

6. The domestic producer surplus = area H

$= (\frac{1}{2} \times 50) \times 5$

 = USD 125

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### Worked example 3

Let us now assume that the government wishes to protect the domestic coffee industry, and levies a tariff on imported coffee. After the tariff:

1. What is the new price and quantity of coffee?
2. Calculate the consumer surplus.
3. What is the total revenue earned by domestic firms?
4. Calculate the domestic producer surplus.
5. What does the green triangle (triangle C) in **Figure 3** represent?
6. Calculate the total welfare loss from the tariff.

1. The new equilibrium price of coffee is USD 7 and equilibrium quantity is 130 units.

2. The consumer surplus = area A + B + C

$$= (1/2 \times 130) \times 13$$

= USD 845

3. The revenue earned by domestic firms is USD  $7 \times 70 = \text{USD } 490$ .

4. Domestic producer surplus = area H + D

$$= (1/2 \times 70) \times 7$$

 Student view

= USD 245

5. The green triangle (triangle C) is the net gain from trade. Consumers consume more coffee, and pay a lower price for each unit of coffee (from USD 10 to USD 7).

6. The total welfare loss is equal to triangle E plus triangle G.

$$\text{Triangle E} = 1/2 (70 - 50) \times (\text{USD } 7 - \text{USD } 5) + \text{triangle G} = 1/2 (150 - 130) \times (\text{USD } 7 - \text{USD } 5)$$

$$= 10 \times \text{USD } 2 + 10 \times \text{USD } 2$$

$$= \text{USD } 20 + \text{USD } 20$$

$$= \text{USD } 40$$



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**⚠ Be aware**

Make sure you use a currency symbol if you are referring to price, revenue or costs for any maths questions to ensure you get full marks.

Complete section with 3 questions

Start questions

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4. The global economy / 4.2 Types of trade protection



(https://intercom.help/kognity)



# Quotas

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In some circumstances, a country may prefer to protect the domestic economy through a quota, rather than a tariff.

## Effects of quotas on markets

A quota is a physical limit on the volume of a particular good entering the country from abroad. Quotas are often used to slow imports without giving an unfair advantage to the domestic market.

### Case study

#### Indonesian palm oil and EU dairy quotas

Protectionism can sometimes be used as a tool to promote economic well-being. In March 2019, the EU placed a ban on using Indonesian palm oil for biofuel for transport. This was a significant blow to the Indonesian economy, since palm oil exports to the EU were worth over 400 million euros in 2018. The EU argued that palm oil production is unsustainable, because Indonesia has to clear vast amounts of the rainforest to build more palm oil plantations. Deforestation has a huge impact on the environment, such as destroying the natural habitat of endangered species like orangutans and Sumatran tigers.



**Figure 1.** Rainforest is cleared in Indonesia to make way for palm oil plantations.

Credit: Getty Images Vaara

In response, Indonesia placed a quota on all EU dairy products in 2019. Before the quota, the EU supplied almost 30 per cent of Indonesia's dairy market, but since the quota they have been trying to find new export markets. (<https://www.reuters.com/article/us-eu-indonesia-dairy/indonesia-warns-on-eu-trade-deal-dairy-imports-amid-palm-oil-spat-idUSKBN1YL16S>)

Questions to consider:

1. Under what conditions do you think protectionism may be justified?
2. Is protectionism an appropriate tool for creating a sustainable world?

Read an economic response to addressing deforestation in the Amazon rainforest [here](https://news.mongabay.com/2020/04/investing-in-amazon-rainforest-conservation/) ↗ (<https://news.mongabay.com/2020/04/investing-in-amazon-rainforest-conservation/>).

## Making connections

Deforestation has private benefits and external costs. As you will recall from [subtopic 2.8 \(/study/app/pp/sid-186-cid-754025/book/the-big-picture-id-29875/\)](#), some economic activities can affect third parties. Deforestation reduces biodiversity, releases carbon into the atmosphere and can cause soil erosion. In 2019, the smoke from fires to clear the rainforest in Sumatra was so bad that schools had to close for [three days](#) (<https://www.channelnewsasia.com/news/asia/haze-indonesia-sumatra-borneo-schools-shut-12002408>). These are external costs that are not felt by the palm oil plantation corporations. This is referred to as a negative externality of production: a social cost that accrues to society from the production of a good or service.

**Figure 2** shows the effects of a quota on European cheese on the Indonesian dairy market. Before the quota was introduced, Indonesia consumed  $Q_4$  amount of cheese at the world price. Indonesia produced  $Q_1$  domestically and imported ( $Q_4 - Q_1$ ) amount of cheese.

Now, let's assume Indonesia places a quota on European cheese. The quota can be measured by the distance between the two supply curves: the domestic supply and the domestic supply + import supply.

### ✓ Important

There are several important distinctions between quotas and tariffs:

- Tariffs add additional costs to imports. This gives domestic goods a competitive advantage.
- Governments do not earn anything from a quota, whereas the government earns tax revenue from a tariff.

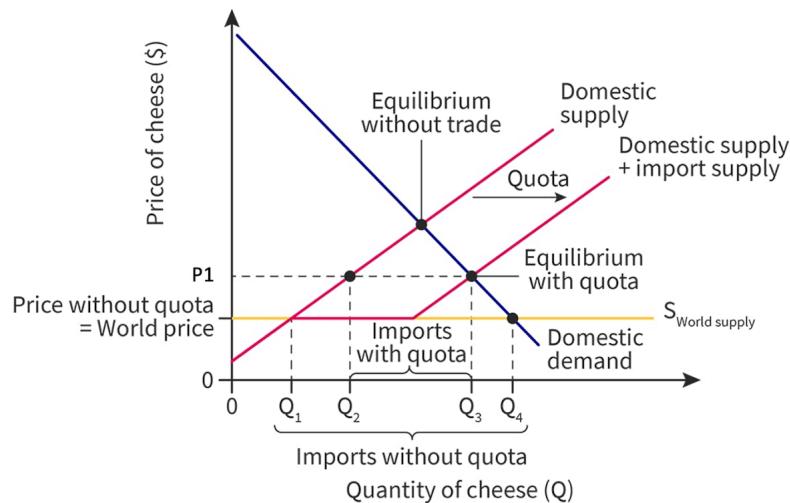


Figure 2. The effect of a quota on the Indonesian dairy market.

[More information for figure 2](#)

The graph illustrates the Indonesian dairy market with the impact of a quota on cheese imports. The X-axis represents the quantity of cheese (Q) and includes values from 0 to  $Q_4$ , with  $Q_1$ ,  $Q_2$ , and  $Q_3$  marked as significant points. The Y-axis shows the price of cheese in dollars (\$), starting from the base line, which is labeled as the "World price" or the "Price without quota".

There are several key lines and points: 1. The downward blue line labeled "Equilibrium without trade" shows the market balance without any quota. 2. The red line marked "Domestic supply" indicates the quantity of cheese produced domestically. 3. The "Domestic supply + import supply" line, running from 0 to  $Q_1$  at the world price level, shows the combined supply when the quota is in place. 4. The intersection point of the domestic supply curve and world

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supply is labeled "Equilibrium with quota." 5. Labels on the graph indicate areas affected by the quota. The region from Q1 to Q2 is labeled "Imports with quota," highlighting the cheese imports restricted by the quota. 6. Beyond Q2, the graph shows a return to domestic production, marked by another upward-sloping line.

This graph visually represents how the domestic supply, import supply, and equilibrium are affected by a quota imposed on cheese imports, limiting the amount and increasing reliance on domestic production beyond Q2.

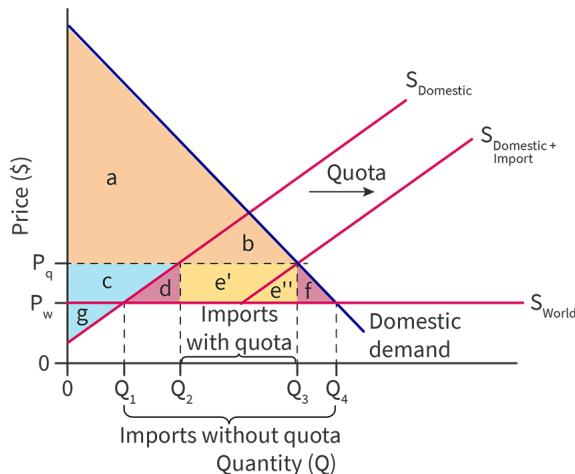
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We can look at the effect of the quota in **Figure 2** by following the domestic supply + import supply line, which is the supply curve after the quota has been implemented. This line runs from 0 to  $Q_1$  and aligns with the domestic supply curve. It represents how much domestic firms are prepared to produce below the world price. When this line meets the world price, importers are prepared to start importing European cheese into Indonesia and will import an amount equal to the quota. Once the quota is fulfilled, production reverts back to the domestic producers and follows an upward sloping supply curve.

After the quota, a new equilibrium is formed where price meets the supply curve and consumers will purchase  $Q_3$  amount of cheese at price  $P_1$ . Note that the quota is represented by  $Q_3 - Q_2$ .

## Effects of quotas on stakeholders

Like tariffs, quotas will also have various effects on a range of stakeholders involved in the trade, as illustrated by **Figure 3**. Using the quotas on European cheese as an example, the affected stakeholders are as shown.



**Figure 3.** The effects of a quota on a range of stakeholders.

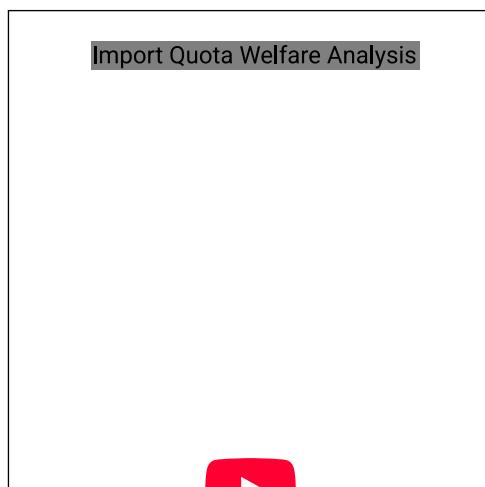
More information for figure 3

This diagram illustrates the effects of a quota on a range of stakeholders, using European cheese as an example. The diagram is composed of several colored areas labeled as a, b, c, d, e', e'', f, and g. These areas are divided by straight lines and curves that intersect, forming a larger shape that represents the overall effect of quota implementation. Each segment likely represents different variables or impacts such as changes in supply, demand, or pricing dynamics. The overall layout of the diagram suggests various stakeholders' benefits and drawbacks when a quota is imposed, meant to educate on economic impacts related to trade restrictions. The diagram is a theoretical representation that requires understanding of economic terminology and graph analysis.

[Generated by AI]

- 1. Domestic producers:** Domestic producers are better off as a result of the quota. They are able to produce more cheese, as the price rises, causing an expansion along  $S_{\text{Domestic} + \text{import}}$ . Domestic producers can sell more goods (from  $Q_1$  to  $Q_2$ ) at a higher price from  $P_w$  to  $P_q$ . Producer surplus increases from g to  $g + c$ .
- 2. Foreign producers (importers):** The volume of cheese imported into Indonesia falls as a result of the quota, from  $(Q_4 - Q_1)$  to  $(Q_3 - Q_2)$ . However, importers will benefit from quota revenues from  $P_w$  to  $P_q$ . Area e is the quota revenue earned by foreign producers.
- 3. Consumers:** Consumers stand to lose the most from quotas. Consumers must pay higher prices from  $P_w$  to  $P_q$ , and also buy fewer goods from  $Q_4$  to  $Q_3$ . Consumer surplus falls from  $a + b + c + d + e + f$  to  $a + b$  only.
- 4. Government:** The government does not benefit from quotas. The government does not earn any tax revenue.
- 5. Society:** A welfare loss is created of  $d + f$ . These areas represent inefficiencies in domestic production (area d) because now production of  $Q_1 - Q_2$  is switched to relatively inefficient domestic producers. Area "f" represents a loss in consumer surplus, from higher prices and lost output.

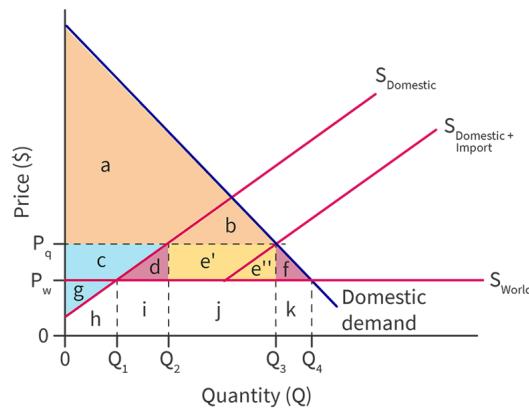
Watch the following video to learn more about how quotas can be used.



### Worked example 1

Test your understanding of the impacts of quotas by using **Figure 4** to help you answer the questions.

✓  
Student view



**Figure 4.** The effects of a quota on a range of stakeholders.

More information for figure 4

The diagram illustrates the effects of a quota on various economic stakeholders. The X-axis represents quantity, increasing from left to right. The Y-axis represents price, increasing downward. The diagram is divided into several colored sections identified by letters: 'a', 'b', 'c', 'd', 'e', 'e'', and 'f'. These sections delineate different economic impacts caused by the quota. The area 'g' represents the government's revenue from the quota. The diagram shows

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intersecting lines and areas indicating changes in supply, demand, and economic surplus. There is a visual representation of the loss in efficiency, consumer surplus, and the creation of producer surplus due to the quota imposition. Lines highlighting quota limits and effects are clearly marked to show changes from free trade conditions.

[Generated by AI]

If we assume that there is free trade:

1. How much cheese is imported?
2. How much cheese is produced domestically?
3. What is the:
  - a) domestic producer surplus?
  - b) consumer surplus?

$$1. Q_4 - Q_1$$

$$2. Q_1$$

3.

a) Producer surplus is the area above the supply curve and below the market price. It is the difference between the price producers are willing to accept (supply curve) and the market price.

Student view

= Area g

b) Consumer surplus is the area below the demand curve and above the market price. It is the difference between the price consumers are willing to pay (demand curve) and the market price.

= Area a + b + c + d + e + f

## Worked example 2

Now, let us assume that a quota is levied on European cheese imported into Indonesia. After the quota:

4. How much cheese will be purchased?
5. What is the:



a) consumer surplus?

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b) domestic producer surplus?

6. How much does the government earn in tax revenue from the quota?

7. What is the deadweight loss from the quota?

4. Before the quota,  $Q_4$  amount of cheese is purchased.

After the quota,  $Q_3$  cheese is purchased.

5.

a) Consumer surplus is the area below the demand curve and above the new market price.

= Area a + b.

b) Producer surplus is the area above the supply curve and below the new market price.

= Area g + c

6. The government does not collect any tax revenue from the quota, so earns zero tax revenue.

7. Area d represents welfare loss that arises from a misallocation of resources in cheese production. Under free trade, area d represents cheese that would be produced by more efficient producers from the EU. However, once the quota is in place, area d is cheese that is now produced by less efficient domestic farmers.

Area f represents welfare loss to consumers. Under free trade, area f represents the additional cheese that would have been consumed at a lower price. Once the quota is put in place, consumers lose area H and must consume less cheese and at a higher price.

The total welfare loss is equal to d + f.



## The effect of quotas on revenues

The implementation of a quota can have a significant effect on the revenues of domestic and foreign producers. **Figure 5** shows that domestic producers will always earn more with a quota.

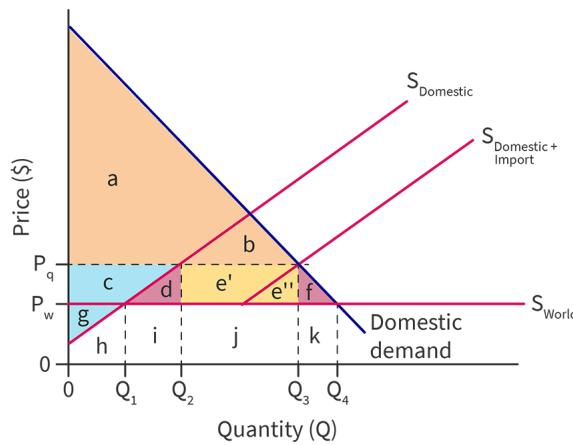


Figure 5. The effect of quotas on revenues.

More information for figure 5

The graph displays the economic impact of quotas. The X-axis represents quantity with the labels pointing to different quota levels, and the Y-axis denotes price levels. A downward-sloping demand curve and an upward-sloping supply curve are present. Key areas are marked with labels such as 'a', 'b', 'c', 'd', 'e'', 'e''', 'f', and 'g', each representing different segments of economic benefits or costs. The areas under the supply and demand curves are shaded with various colors to differentiate the regions affected by the introduction of quotas. Notably, the graph illustrates the shift in economic surplus between domestic producers and other stakeholders before and after quotas are imposed, with visible lines indicating changes in producer and consumer surplus.

[Generated by AI]

See **Table 1** for a summary of the effect of quotas on a range of stakeholders.

Table 1. Summary of the effects of quotas on stakeholders.

Stakeholder	Before	After
Domestic producers	<ul style="list-style-type: none"> <li>Revenue g + h</li> <li>Producer surplus g</li> </ul>	<ul style="list-style-type: none"> <li>Revenue c + d + g + h + i</li> <li>Producer surplus c + g</li> </ul>
Foreign producers (importers)	<ul style="list-style-type: none"> <li>Revenue i + j + k</li> </ul>	<ul style="list-style-type: none"> <li>Revenue j + e</li> </ul>
Consumers	<ul style="list-style-type: none"> <li>More choice</li> <li>Lower prices</li> <li>Consumer surplus of a + b + c + d + e + f</li> </ul>	<ul style="list-style-type: none"> <li>Less choice</li> <li>Higher prices</li> <li>Consumer surplus of a + b only</li> </ul>
Government	<ul style="list-style-type: none"> <li>No impact</li> </ul>	<ul style="list-style-type: none"> <li>May be able to charge for quota licences</li> </ul>
Society	<ul style="list-style-type: none"> <li>Efficient allocation of resources</li> </ul>	<ul style="list-style-type: none"> <li>Welfare loss d + f</li> </ul>

 **Activity**

In 2020, a global pandemic devastated the world economy as the deadly disease COVID-19 infected millions of people. In an attempt to control the virus, many countries shut down their economies in self-imposed 'lockdowns'. Many businesses, such as retail establishments and production plants, temporarily closed down, leading to a spike in unemployment and causing the world economy to significantly contract. To help support strategic industries, the EU decided to decrease the quota on imported steel  (<https://www.metalbulletin.com/Article/3926656/Eurofer-calls-for-75-cut-to-EU-steel-import-quotas-because-of-unprecedented-implosion-of-market.html>) by 75 per cent.

In groups, discuss the effects on each stakeholder.

1. Which stakeholders do you think will be better off because of the decreased quota? Explain why.
2. Why do you think the EU implemented a quota rather than a tariff?

**Complete section with 3 questions**

[Start questions](#)

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# Calculating quotas (HL)

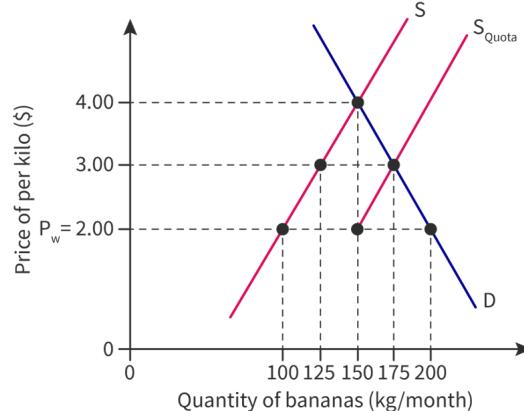
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Notebook For the Higher level course, you are required to use a diagram to calculate the effects of quotas on a range of stakeholders. Have a look at **Figure 1**, which shows the quota placed on banana imports per month.



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**Figure 1.** A quota placed on banana imports per month.

[More information for figure 1](#)

The image is a graph depicting a supply and demand diagram showing the effects of a quota on banana imports per month. The horizontal X-axis represents the quantity of bananas in kilograms per month, ranging from 0 to 200 in intervals of 25 kg. The vertical Y-axis represents the price per kilo in dollars, starting at 0 and up to 4.00, with key price points marked such as  $P_w = 2.00$ .

There are three main lines on the graph: 1. A rising demand line labeled as 'D', indicating that as the price increases, the demand decreases. 2. A supply line labeled 'S', indicating that as the price decreases, the supply also decreases. 3. An additional supply line labeled 'S\_quota', showing the effect of a quota on supply which shifts the supply curve leftward.

The supply line without the quota intersects the demand line closer to the horizontal axis, showing a higher quantity of bananas (around 175 kg) at a lower price point. In contrast, the 'S\_quota' line intersects at a higher price and lower quantity (around 125 kg), demonstrating the effect of the quota.

Dotted lines are drawn from the intersections to the axes, highlighting the change in price and quantity due to the quota.

[Generated by AI]

## Worked example 1

Using **Figure 1**, answer the following questions. Before trade:

1. What is the equilibrium price and quantity of bananas?
2. How much do consumers spend on bananas?
3. How much do domestic producers earn from selling bananas?

1. Before trade, the equilibrium price is USD 4 per kilo and the equilibrium quantity is 150 kg.

2. Consumers spend USD 600 per month. This is the price  $\times$  quantity:

$$= \text{USD } 4 \times 150$$

$$= \text{USD } 600 \text{ per month}$$

3. Producers earn USD 600 per month. Their total revenue = price  $\times$  quantity:

$$= \text{USD } 4 \times 150$$

$$= \text{USD } 600 \text{ per month}$$

Now, let us assume that the domestic economy opens its borders to free trade.

4. What is the new price and quantity of bananas?

5. How much do consumers spend on bananas?

6. How much do domestic producers earn from selling bananas?

7. How much do importers earn from selling bananas?

8. Calculate the change in consumer surplus.

4. Free trade will allow banana imports to freely enter the domestic market. This will drive down prices to the world price at USD 2 and increase the quantity to 200 kg.

With free trade, equilibrium price is USD 2 per kilo and equilibrium quantity is 200 kg.

5. Consumers spend USD 400 per month. This is the price  $\times$  quantity:

$$= \text{USD } 2 \times 200$$

$$= \text{USD } 400 \text{ per month}$$

6. Domestic producers earn USD 200 per month. Their total revenue is price  $\times$  quantity:

$$= \text{USD } 2 \times 100$$

$$= \text{USD } 200 \text{ per month}$$

7. Importers earn USD 200 per month. Their total revenue = price  $\times$  quantity:

$$= \text{USD } 2 \times (200 - 100)$$



= USD 200 per month

8. The change in the consumer surplus refers to how much extra consumer surplus consumers enjoy because of lower prices (from USD 4 to USD 2):

$$= (2 \times 150) + (\frac{1}{2} \times 50 \times 2)$$

= USD 350 per month

Let us assume that the government wishes to protect the domestic banana industry, and so imposes a quota on imported bananas.

9. How many bananas are imported under the quota?

10. What is the total value of banana imports?

11. What is the new price and quantity of bananas after the quota?

12. How much will consumers spend on bananas?

13. How many bananas are produced by domestic firms?

14. What is the total revenue earned by domestic firms after the quota?

15. What is the total revenue earned by importers after the quota?

16. Calculate the total welfare loss from the quota.

9. The size of the quota is equal to the horizontal distance between the two supply curves. 50 kg of bananas per month are imported under the quota.

10. Total value of imports = (imports = 50) × (price = USD 3)

= USD 150 per month.

11. The equilibrium price is USD 3 per kilo and the equilibrium quantity is 175 kg.

12. Consumers spend USD 525 per month. This is the price × quantity:

= USD 3 × 175

= USD 525 per month.

13. Domestic farmers will produce 125 kg per month after a quota is imposed.

14. Domestic firms will earn USD 375 total revenue per month.

(USD 3 × 125)



= USD 375 per month.

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15. Importers sell  $(175 - 125)$  kilos of bananas at USD 3 each, so they will earn USD 150 per month.

$$= 50 \times 3$$

= USD 150 per month.

16. The total welfare loss is equal to the two blue triangles in **Figure 2**:

$$= (\frac{1}{2} \times 25) \times \text{USD } 1 + (\frac{1}{2} \times 25) \times \text{USD } 1$$

= USD 25.

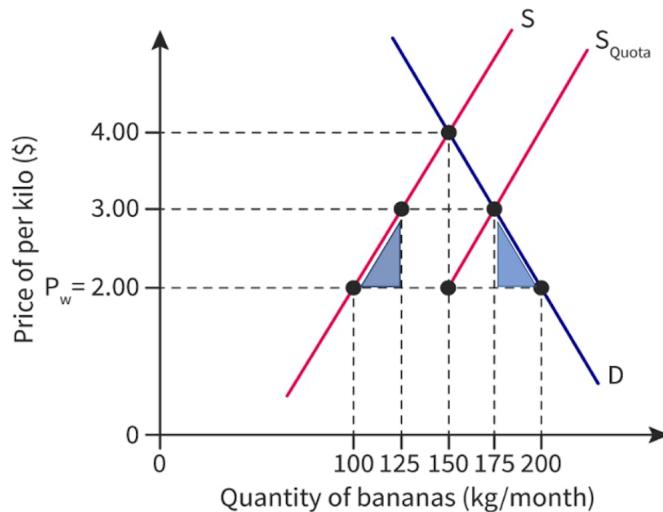


Figure 2. The blue triangles show the deadweight loss for a quota.



✓  
Student  
view

The image depicts a graph illustrating supply and demand for bananas.

- **X-axis:** Represents the quantity of bananas in kilograms per month, ranging from 0 to 200.
- **Y-axis:** Represents the price per kilogram in dollars, ranging from 0 to 4, with a highlighted price of  $P_w = \$2.00$ .

The graph shows two lines intersecting: 1. **Demand Line (D):** Sloping downwards from left to right. 2. **Supply Line (S):** Sloping upwards from left to right. Additionally, there's a red line labeled **S\_Q quota** indicating a modified supply curve under a quota constraint.

Several data points are marked along these lines at intersections of grid lines: - 100 kg at \$2.00 - 125 kg at \$3.00 - 150 kg at \$3.00 - 200 kg at \$4.00

Two triangular areas between the demand curve and the quota supply curve are shaded, representing the deadweight loss due to the quota.

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## Activity

Host a debate in your classroom on the following topic.

'Nations should always prefer to impose quotas rather than tariffs.'

Choose whether to provide the argument for or against the topic, and present your argument to the rest of the class.

Suggestions for further reading:

The Choice between Import Tariffs and Quotas ([https://saylordotorg.github.io/text\\_international-trade-theory-and-policy/s10-15-the-choice-between-import-tariffs.html](https://saylordotorg.github.io/text_international-trade-theory-and-policy/s10-15-the-choice-between-import-tariffs.html))

Why Tariffs Are Preferable to Quotas (<https://www.thoughtco.com/why-tariffs-are-preferable-to-quotas-1146369>)

Complete section with 3 questions

Start questions

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4. The global economy / 4.2 Types of trade protection



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# Subsidies

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During World War II, Europe experienced a significant food shortage. Fighting, bombing and cut supply lines meant that many countries were unable to supply enough food to consumers. Greece faced famine in the winter of 1941–42, as a wartime blockade stopped food imports into the country. The Netherlands also suffered from food shortages. Another blockade stopped the transport of food to towns, leading to the Dutch famine of 1944–45. Hunger and starvation were widespread, and people were forced to eat tulip bulbs to survive.



**Figure 1.** During World War II, extreme food shortages meant the Dutch had to eat tulip bulbs to survive.

Credit: Getty Images Ekspanvio

Student  
view

After the war, Europe was determined to have the capacity to produce food on its own land in order to avoid future food shortages. The European Union, through its Common Agricultural Policy (CAP), ensured food was produced in Europe by heavily subsidising its farming industry. By lowering production costs, firms were able to increase total production and reduce the reliance on foreign imports of food.

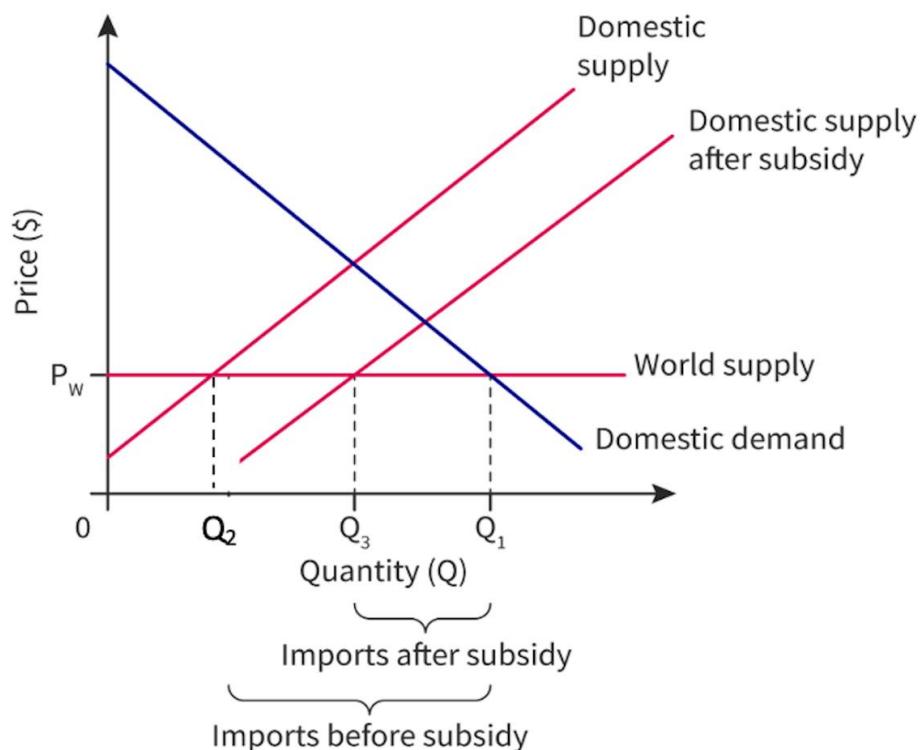
## ✓ Important

There are important differences between subsidies and tariffs.

1. A tariff increases costs for importers (they have to pay the tariff); a subsidy increases revenue for domestic producers (they earn a subsidy).
2. Governments earn revenue from a tariff, but must expend money for a subsidy.

## Effects of subsidies on the domestic market

A **subsidy** is a payment per unit of output from the government to a specific industry to help lower production costs and boost production. **Figure 2** shows the effects of a subsidy on the domestic market for sugar in the EU.



**Figure 2.** The effects of a subsidy on the domestic economy.

**Figure 2.** The effects of a subsidy on the domestic economy.

More information for figure 2

The graph depicts the effects of a subsidy on the domestic economy, illustrating supply and demand in the sugar market. The X-axis represents quantity (Q) with points labeled  $Q_2$ ,  $Q_3$ , and  $Q_1$ , while the Y-axis represents price in dollars (\$), starting from 0. The graph includes four main lines: Domestic Supply, Domestic Supply after Subsidy, World Supply, and Domestic Demand.

- The Domestic Supply curve slopes upward, indicating a direct relationship between quantity and price.
- Domestic Supply after Subsidy is a parallel line to Domestic Supply, shifted to the right, showing increased production due to the subsidy.
- World Supply is a horizontal line at price level  $P_w$ , underlining the constant world price.
- Domestic Demand is a downward sloping line, illustrating an inverse relationship between quantity and price.

Before the subsidy, the equilibrium without imports is at  $Q_2$ ; after the subsidy, it shifts to  $Q_3$ , where domestic supply increases and imports are reduced. Imports before and after subsidy are labeled below the X-axis. This graphical representation indicates that with the subsidy, domestic production is incentivized, reducing dependency on imports without changing the total consumption in the market, thus keeping consumer surplus unchanged.

[Generated by AI]

Sugar can be produced from either sugar cane, which is grown in hot, tropical regions, or sugar beet. Although the EU produces sugar domestically from sugar beet, this is not enough alone, and it must import almost 3.5 million tonnes of sugar cane per year (<https://www.absugar.com/sugar-markets/eu-sugar-sector>). According to the diagram above, the world price for sugar lies below the intersection of domestic supply and domestic demand. Sugar is much cheaper abroad. Assuming free trade, EU consumers would enjoy  $Q_1$  amount of sugar at the world price  $P_w$ . But at the low price  $P_w$ , domestic farmers are only prepared to produce  $Q_2$  amount of sugar. Therefore,  $(Q_1 - Q_2)$  amount of sugar is imported. This might result in farmers being unemployed, fields left empty and consumers dependent upon imports for this essential good. In accordance with the EU Common Agricultural Policy, the EU subsidises sugar production. This will

shift out the domestic supply curve to the right. European farmers will produce more sugar, increasing from  $Q_2$  to  $Q_3$ . Consumers pay the world price  $P_w$ , but domestic producers earn  $P_w$  plus the subsidy. Notice that total consumption in the market remains unchanged; therefore, consumer surplus will remain unchanged, making subsidies slightly better than tariffs and quotas from this perspective. One important difference is that consumers buy more from the domestic producers rather than from overseas suppliers.

## The effects of a subsidy on stakeholders

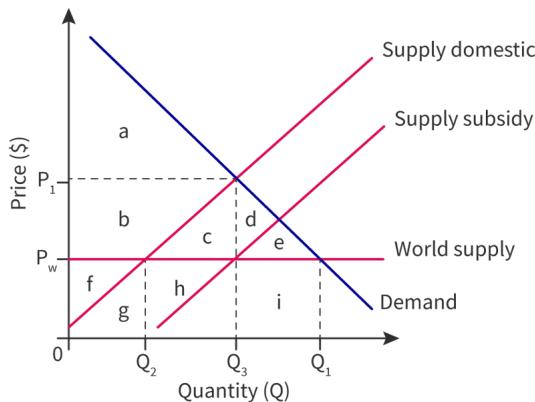


Figure 3. The effects of a subsidy on a range of stakeholders.

More information for figure 3

This graph illustrates the effects of a subsidy on supply and demand. The X-axis represents Quantity (Q) ranging from 0 to  $Q_1$ , and the Y-axis represents Price (\$) ranging from  $P_w$  to  $P_1$ . There are four labeled lines: Demand, Supply domestic, Supply subsidy, and World supply. The Demand line slopes downward from left to right, while the Supply domestic and Supply subsidy lines slope upwards, with the Supply subsidy line lying below the Supply domestic line due to the subsidy. The World supply is a horizontal line at  $P_w$ . Intersection points create various labeled areas (a, b, c, d, e, f, g, h, i). These regions represent different effects impacted by subsidies and indicate shifts in supply curves as a result of changes in subsidies.

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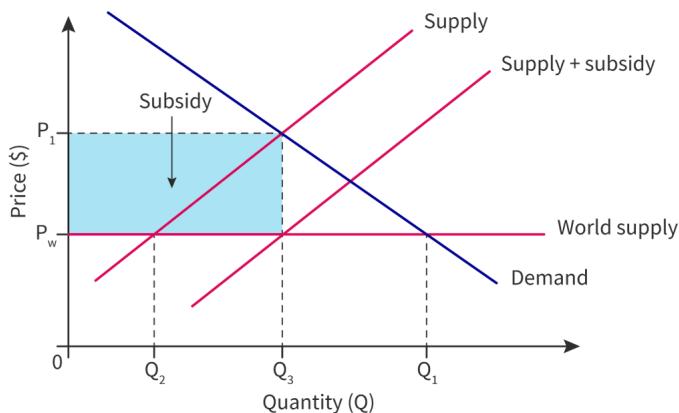
Student view

Subsidies will have an effect on a range of stakeholders, both within the domestic economy and abroad. Using the example of EU subsidies on sugar, the affected stakeholders are:

**1. Domestic producers:** Domestic producers are better off as a result of the subsidy. After the subsidy they produce  $Q_3$  and receive a price of  $P_1$  ( $P_w$  + the subsidy). Before the subsidy, they earned  $F + G$  in total revenue. After the subsidy, they earn  $F + G + H + B + C$  (where  $B + C$  is revenue earned from the subsidy). Domestic producers also enjoy a larger producer surplus as well. Before the subsidy, producer surplus was  $F$ , but after the subsidy, the producer surplus is now  $F + B$ .

**2. Foreign producers:** Foreign producers are worse off after the subsidy. They now sell less sugar into Europe, from  $H + I$  to  $I$ .

**3. Consumers:** Consumption of the good remains the same at  $Q_1$  and the price remains the same for consumers at  $P_w$ . The consumer is just buying more of the good from domestic producers and less from overseas producers. Consumer surplus stays constant at  $A + B + C + D + E$ .



**Figure 4.** The size of the subsidy. This is the amount the government must pay out to domestic firms to pay for the subsidy.

More information for figure 4

This is a graph illustrating the impact of a subsidy on the market, with both demand and supply curves. The X-axis represents Quantity (Q) and ranges from 0 to  $Q_1$ , marked with incremental points at  $Q_2$  and  $Q_3$ . The Y-axis represents Price (in dollars) and ranges from  $P_w$  to  $P_1$ .

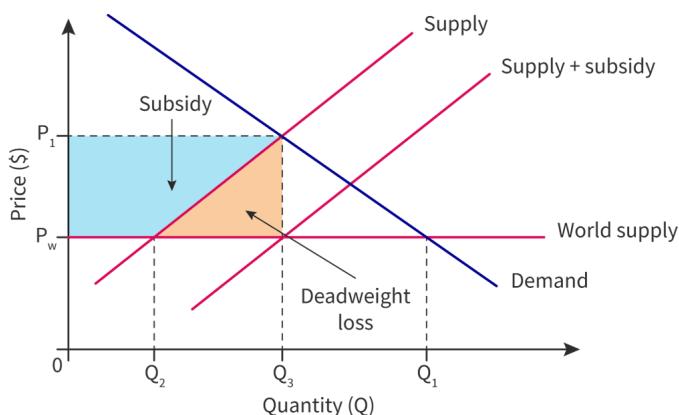
The demand curve slopes downward from left to right. The supply curve is originally upward sloping from left to right and is labeled "Supply." There's an additional curve labeled "Supply + subsidy" which is positioned below the original supply curve, indicating the effect of the subsidy.

A horizontal line labeled "World supply" intersects the Y-axis at  $P_w$ , showing the world price level. There's an arrow pointing downward labeled "Subsidy," indicating the vertical distance between the original supply curve and the supply with subsidy.

The shaded area between  $P_1$  and  $P_w$ , from  $Q_2$  to  $Q_3$ , represents the amount of subsidy provided by the government, as measured by the area between the two supply curves (Supply and Supply + subsidy). The primary effect shown is the shift in the supply curve due to the subsidy, increasing the quantity demanded from  $Q_2$  to  $Q_3$  under the new supply conditions; however, consumption remains constant for consumers as specified in the surrounding context.

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**4. Government:** The government is worse off after the subsidy because it has to pay the subsidy to the domestic producers. This is the equal to the area  $(P_1 - P_w) \times Q_3$  (area B + C). The payment of the subsidy has an opportunity cost as the money (originally from taxpayers) could be spent on health services or education.



**Figure 5.** The deadweight loss that arises from a subsidy.



More information for figure 5

The image is a graph illustrating the economic concept of a deadweight loss arising from a subsidy. The X-axis represents Quantity (Q) with points marked as Q<sub>2</sub>, Q<sub>3</sub>, and Q<sub>1</sub>. The Y-axis represents Price (\$), with two price levels labeled P<sub>1</sub> and P<sub>w</sub>.

There are several lines intersecting on the graph: "Supply," "Supply + subsidy," "World supply," and "Demand." The "Supply + subsidy" line is above the "Supply" line, indicating a shift due to the subsidy.

A rectangular area between the prices P<sub>1</sub> and P<sub>w</sub>, from Q<sub>2</sub> to Q<sub>3</sub>, is highlighted and labeled as "Subsidy." Within this rectangle, a triangular area is marked and labeled as "Deadweight loss," indicating inefficiencies in the market.

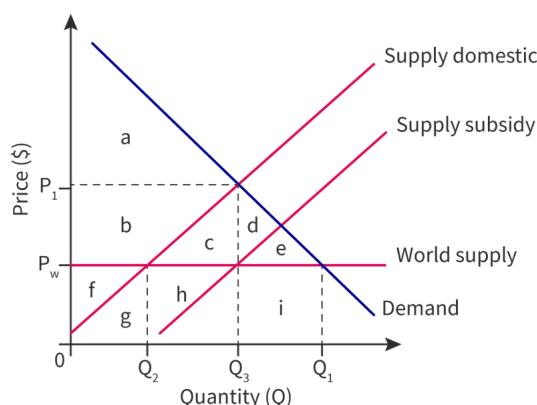
Overall, the graph depicts how subsidies affect market supply and demand, leading to a deadweight loss due to misallocation of resources.

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**5. Society:** More is now being produced by relatively inefficient domestic producers and so resources are being misallocated, leading to a welfare loss for society (area C).

### Worked example 1

Test your understanding of the impacts of subsidies on stakeholders by using **Figure 6** to help you answer the questions.



**Figure 6.** The effects of a subsidy on a range of stakeholders.

More information for figure 6

The graph illustrates the impact of a subsidy on the supply and demand of sugar in Europe, assuming free trade. The X-axis represents Quantity (Q), marked with three points: Q<sub>2</sub>, Q<sub>3</sub>, and Q<sub>1</sub> from left to right. The Y-axis represents Price (\$), with two key prices marked: P<sub>1</sub> as the higher and P<sub>w</sub> as the lower price. Four lines represent different relations:

- A downward sloping blue line marked 'Demand' extends from top left to bottom right.
- An upward sloping pink line labeled 'Supply domestic' extends from bottom left to top right and intersects the demand curve at point Q<sub>1</sub> on the X-axis and price P<sub>1</sub> on the Y-axis.
- Another pink line, labeled 'Supply subsidy', is parallel but slightly to the right of the 'Supply domestic' line, indicating a shift rightward due to the subsidy.
- A horizontal pink line at P<sub>w</sub> is labeled 'World supply'.

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The area between the 'Demand' and 'Supply subsidy' lines, underlined by  $P_w$ , is filled with shaded regions labeled with letters 'f', 'g', 'h', 'b', 'c', 'd', and 'a'. Each letter represents a segment of change due to the subsidy, indicating areas of consumer surplus, producer surplus, and other economic impacts of the supply shift.

[Generated by AI]

**Figure 6** shows the market for sugar in Europe. If we assume free trade:

1. How much sugar is imported?

2. How much sugar is produced domestically?

3. What is the:

a) domestic producer surplus?

b) consumer surplus?

4. How much revenue do:

a) importers earn?

b) domestic producers earn?

1.  $Q_1 - Q_2$

2.  $Q_2$

3.

a) Producer surplus is the area above the supply curve and below the market price. It is the difference between the price producers are willing to accept (supply curve) and the market price.

= Area F

b) Consumer surplus is the area below the demand curve and above the market price. It is the difference between the price consumers are willing to pay (demand curve) and the market price.

= Area A + B + C + D + E

4.

a) Importers sell  $(Q_1 - Q_2)$  amount of sugar at  $P_w$ .

Revenue earned by importers = H + I



b) Domestic producers sell ( $Q_2$ ) amount of sugar at  $P_w$ .

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Revenue earned by domestic producers = F + G

## Theory of Knowledge

Subsidies represent a transfer payment to profit making firms. Some subsidies are significantly large, for example Boeing received a record [USD 8.7 billion subsidy](https://www.heritage.org/markets-and-finance/commentary/government-shouldnt-play-subsidy-game-free-market) (<https://www.heritage.org/markets-and-finance/commentary/government-shouldnt-play-subsidy-game-free-market>) in 2013.

The government uses tax revenue that it could otherwise use for hospitals, education, or as income support for the poor. Up until [2017](https://www.oecd.org/fossil-fuels/publication/Indonesia%20G20%20Self-Report%20IFFS.pdf) (<https://www.oecd.org/fossil-fuels/publication/Indonesia%20G20%20Self-Report%20IFFS.pdf>), Indonesia spent over [20 per cent of the government budget subsidizing fuel](http://documents1.worldbank.org/curated/en/118181468044121438/pdf/868150BRIOP14000Box385183B00PUBLIC0.pdf) (<http://documents1.worldbank.org/curated/en/118181468044121438/pdf/868150BRIOP14000Box385183B00PUBLIC0.pdf>). This was three times more than it spent on roads, water, irrigation networks and health care.

Is it ethical to channel taxpayer money to firms who are already making a profit?

**Knowledge question:** To what extent should economic policy be determined by efficiency (reason) or equity (emotion)?

## Worked example 2

Let us assume that a subsidy is paid to European sugar producers. After the subsidy:

1. How much sugar will be purchased?

2. What is the:

a) consumer surplus?

Student view

b) domestic producer surplus?

3. How much revenue do:

a) importers earn?

b) domestic producers earn?

4. How much does the government pay for the subsidy?

5. What is the deadweight loss from the subsidy?

1. After the subsidy,  $Q_1$  amount of sugar is purchased. The amount of sugar purchased is the same.

2.

a) Consumer surplus is the same.



= Area A + B + C + D + E

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b) Domestic producer surplus is the area above the supply curve and below the market price  $P_1$  plus the subsidy.

= Area F + B

3.

a) Importers sell  $(Q_1 - Q_3)$  amount of sugar at  $P_w$

Revenue earned by importers = I

b) Domestic producers sell  $Q_3$  amount of sugar at  $P_w$  plus the value of the subsidy.

Revenue earned by domestic producers = B + C + F + G + H

4. The government pays the value of the subsidy ( $P_1 - P_w$ ) for goods produced domestically,  $Q_3$ .

The government pays area B + C for the subsidy.

5. The deadweight loss arises from a misallocation of resources. Society is made worse off because the government pays the area B + C for the subsidy. However, triangle B is transferred to domestic firms as increased producer surplus. Therefore, area C is the loss to society.

The total welfare loss is equal to area C.

### Exam tip

Student view

The best way to evaluate the effects of a tariff, quota or subsidy is to consider the different effects on each stakeholder. For example, the government will benefit from a tariff (through increased tax revenue), derives no direct benefit from a quota and will lose from a subsidy.

See **Table 1** for a summary of all the effects of subsidies on stakeholders.

**Table 1.** Summary of the effects of subsidies on stakeholders.

Stakeholder	Before	After
Domestic producers	<ul style="list-style-type: none"> <li>Revenue F + G</li> <li>Producer surplus F</li> </ul>	<ul style="list-style-type: none"> <li>Revenue B + C + F + G + H</li> <li>Producer surplus F + B</li> </ul>
Foreign producers (importers)	<ul style="list-style-type: none"> <li>Revenue H + I</li> </ul>	<ul style="list-style-type: none"> <li>Revenue I</li> </ul>

Stakeholder	Before	After
Consumers	<ul style="list-style-type: none"> <li>Consumer surplus of A + B + C + D + E</li> </ul>	<ul style="list-style-type: none"> <li>Effects on consumers is unchanged</li> <li>Consumer surplus of A + B + C + D + E</li> </ul>
Government	<ul style="list-style-type: none"> <li>Not involved</li> </ul>	<ul style="list-style-type: none"> <li>Pays a subsidy B + C</li> </ul>
Society	<ul style="list-style-type: none"> <li>Efficient distribution of resources</li> </ul>	<ul style="list-style-type: none"> <li>Global misallocation of resources and welfare loss of C</li> </ul>

One challenge for the government is to estimate the size of the subsidy. If the subsidy is too large, it can have devastating effects on other producers. Read below the case study on agriculture in Africa.

## Case study

### Subsidies can distort trade

Africa has a gentle climate and large areas of fertile land, yet its agricultural sector has struggled to be profitable. This has meant that many African nations are net importers of food. Africa imports approximately 80 per cent of its food, including maize, wheat, rice, soya and milk. With cheap land, labour, fertile soils and a conducive climate, Africa has comparative advantage in the production of food, but it cannot compete with European exports. Europe has expensive land, labour and a much less conducive climate. How can this be the case? The answer is subsidies.

The European Union (EU) is the biggest exporter of food to Africa. The EU pays billions to its farmers each year. Subsidies enable European farmers to sell agricultural products at prices that do not cover production costs. For example:

- In Kenya 'and Ghana', it is cheaper to buy canned tomatoes from Italy than fresh tomatoes from a local farmer.
- In Cameroon, it is cheaper to buy milk imported from Germany than from a local dairy farmer. This includes transport costs.
- In Senegal, German wheat is one third the price of wheat grown locally.

Agricultural subsidies in the EU are so large that they create food surpluses. The EU exports these surpluses at a price so low that even African farmers earning less than a dollar a day cannot compete.

Watch the documentary to find out more about the effects of agricultural subsidies from the EU and China on the livelihoods of people in Africa.

<https://www.dw.com/en/displaced-tomatoes-and-greed-the-exodus-of-ghanas-farmers/av-52107159> ↗  
<https://www.google.com/url?q=https://www.dw.com/en/displaced-tomatoes-and-greed-the-exodus-of-ghanas-farmers/av-52107159&sa=D&source=editors&ust=1647439801803063&usg=AOvVaw2EzPg1UN4VVdfrOeDBt5ca>

Questions to consider:

- Why has Edward moved from producing tomatoes in Kenya to Italy?
- How are global markets destroying the domestic tomato industry in Ghana?
- What actions would you recommend for African countries to improve their agricultural sector?

Find out more about the effects of EU subsidies on African countries:

[How EU milk is sinking Africa's farmers](https://www.politico.eu/article/eus-milk-scramble-for-africa/) ↗ (<https://www.politico.eu/article/eus-milk-scramble-for-africa/>)



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[Former UN chief implies EU farm subsidies unfair ↗](https://euobserver.com/environment/137407)

## Export subsidies

A production subsidy (as described in the Case study above) is a payment per unit of production regardless of where the good is sold. An export subsidy, on the other hand, is a payment per unit of production that is exported. This means that goods are exported at a price below the market price in the domestic market. Hence, according to the WTO, export subsidies are illegal.

The effects of an export subsidy can be mixed. If a country exports subsidised corn to a corn-producing nation, the effects will be devastating. Local corn farmers will be decimated trying to compete with cheap corn imports. On the other hand, if a country exports subsidised corn to a non-corn producing country, consumers will definitely benefit from cheap corn. Often, however, countries will only choose to use export subsidies to actively destroy local industries. They may choose to export subsidised corn to a corn producing nation with the intent to destroy local farmers and force them off the land. Then the exporting nation can create a new export market. This is called export creation.

### How bad is the situation?

Read this excerpt from Anuradha Mittal, Land Loss, Poverty and Hunger, Alternet.org

'In Mexico, over 2 million corn farmers have lost their livelihoods over the past few years by allowing imports of heavily subsidised corn from the United States. A flood of cheap imported grain has also driven local farmers out of business in Costa Rica. The same has taken place in Haiti, which the IMF forced the market to open to imports of highly subsidised U.S. rice at the same time as it banned Haiti from subsidising its own farmers. Between 1980 and 1997, rice imports grew from virtually zero to 200 000 tons a year. Kenya, which had been self-sufficient until the 1980s, now imports 80 percent of its food. In 1992, European Union (EU) wheat was sold in Kenya 39 percent cheaper than the price paid to European farmers by the EU. In 1993, it was 50 percent cheaper. Today, Kenya is a wheat importer.'

Complete section with 4 questions

Student view

Start questions

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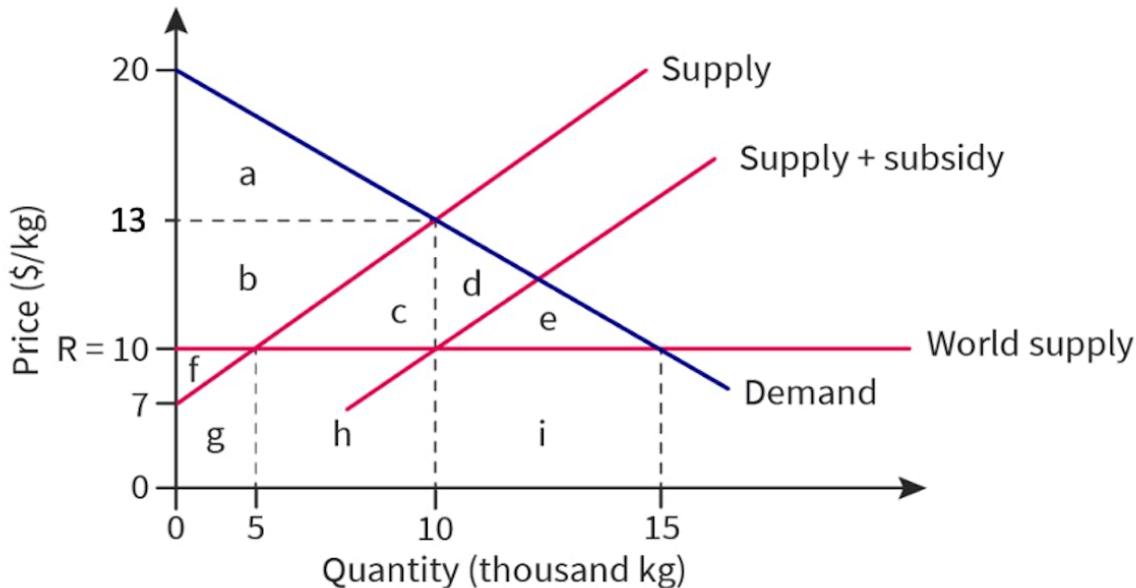


# Calculating subsidies (HL)

## Section

[Feedback](#)


For the Higher level course, you will need to be able to calculate the effects of a subsidy on a range of stakeholders. Have a look at **Figure 1**, which shows a subsidy on soybeans.



**Figure 1. The impact of subsidy on price.**

Figure 1. The impact of subsidy on price.

[More information for figure 1](#)

This graph illustrates the impact of a subsidy on the price and quantity of soybeans. The X-axis represents the Quantity in thousand kilograms, ranging from 0 to 15. The Y-axis represents the Price in \$/kg, ranging from 0 to 20. Three main lines are depicted: Demand, Supply, and Supply with subsidy. There's also a World supply line which is flat at \$10. At a price of \$13, the original supply intersects the demand line at around 5 thousand kg. After the subsidy, the Supply + subsidy line intersects the demand at approximately 10 thousand kg, illustrating increased quantity and reduced price due to the subsidy. Areas marked with letters (a to i) indicate various segments of the graph related to economic concepts such as consumer and producer surplus before and after subsidy.

[Generated by AI]

## Worked example 1

Using **Figure 1**, answer the following questions. Before trade:

1. What is the equilibrium price and quantity of soybeans?
2. How much do consumers spend on soybeans?
3. Calculate the consumer surplus.
4. How much do domestic producers earn from selling soybeans?
5. Calculate the producer surplus.

1. Before trade, the equilibrium price = USD 13 per kg and equilibrium quantity = 10 000 kg.

2. Consumers spend USD 130 000. This is the price × quantity:

$$= \text{USD } 13 \times 10\,000$$

$$= \text{USD } 130\,000$$

3. Consumer surplus is the area underneath the demand curve and above the market price. It is the difference between what consumers are prepared to pay (demand curve) and what they actually pay (the market price).

$$= \text{Area A}$$

$$= (\frac{1}{2} \times 10\,000) \times 7$$

$$= \text{USD } 35\,000$$

4. Producers earn USD 130 000. Their total revenue = price × quantity:

$$= \text{USD } 13 \times 10\,000$$

$$= \text{USD } 130\,000$$

5. Producer surplus is the area above the supply curve and below the market price. It is the difference between the price producers are willing to accept (supply curve) and the market price.

$$= \text{Area B + F}$$

$$(\frac{1}{2} \times 6 \times 10)$$

$$= \text{USD } 30\,000$$

## Worked example 2

Let us assume that the domestic economy opens its borders to free trade. With free trade:

1. What is the new price and quantity of soybeans?
2. How much do consumers spend on soybeans?

 3. How much do the following earn from selling soybeans?

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- a) domestic producers
- b) importers

4. Calculate the:

a) consumer surplus

b) domestic producer surplus

1. Free trade will allow soybean imports to freely enter the domestic market. This will drive down prices to the world price at USD 10 and increase the quantity to 15 000 kg.

With free trade, the equilibrium price = USD 10 per kilo and the equilibrium quantity = 15 000 kg.

2. Consumers spend USD 150 000. This is price × quantity:

$$= \text{USD } 10 \times 15\,000$$

$$= \text{USD } 150\,000$$

3.

a) Domestic producers earn USD 50 000. Their total revenue = price × quantity:

$$= \text{USD } 10 \times 5\,000$$

$$= \text{USD } 50\,000$$

b) Importers earn USD 100 000. Their total revenue = price × quantity:

$$= \text{USD } 10 \times 10\,000$$

$$= \text{USD } 100\,000$$

4.

a) The consumer surplus is USD 75 000. It is area A + B + C + D + E:

$$= (1/2 \times 15\,000) \times 10$$

$$= \text{USD } 75\,000$$

b) The domestic producer surplus is USD 7500. It is area F:

$$= (1/2 \times 5\,000) \times 3$$



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 = USD 7500

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### Worked example 3

Now, let us assume the government wishes to protect the domestic soybean industry, and introduces a subsidy. After the subsidy:

1. How many kilograms of soybeans are imported?

2. What is the total value of soybean imports?

3. What was the size of the subsidy?

4. What is the new price and quantity of soybeans?

5. How much do consumers spend on soybeans?

6. Calculate the:

a) consumer surplus

b) domestic producer surplus.

7. How many kilograms of soybeans are produced by domestic firms?

8. What is the total revenue earned by:

a) domestic firms?

 Student view

b) importers?

9. Calculate the deadweight loss from the subsidy.

1. Imports are equal to  $15\ 000 - 10\ 000$  kg

= 5000 kg.

2. Total value of imports = (quantity = 5000)  $\times$  (price = USD 10)

= USD 50 000

3. A subsidy will shift down the supply curve, and prices will fall from USD 13 to USD 10.

The subsidy is equal to USD 13 – USD 10



= USD 3 per kg.

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4. The equilibrium price = USD 10 per kg and equilibrium quantity = 15 000.

5. Consumers spend USD 150 000. This is the price × quantity:

$$= \text{USD } 10 \times 15\,000$$

$$= \text{USD } 150\,000$$

6.

a) The consumer surplus is USD 75 000. It is area A + B + C + D + E:

$$= (\frac{1}{2} \times 15\,000) \times 10$$

$$= \text{USD } 75\,000$$

b) The domestic producer surplus is USD 30 000. It is area B + F:

$$\text{Area b} = (3 \times 5000) + (\frac{1}{2} \times 5000) \times 3 + \text{Area f} = (\frac{1}{2} \times 5000) \times 3$$

$$\text{Area b} = 22\,500 + \text{Area f} = 7500$$

$$= \text{USD } 30\,000$$

7. 10 000 kg

8.

a) Domestic firms' total revenue = (price + subsidy) × quantity:

$$=(\text{USD } 10 + \text{USD } 3) \times 10\,000$$

$$= \text{USD } 130\,000$$

b) Importers sell 5000 kg of soybeans at USD 10 each

$$= 5000 \times 10$$

$$= \text{USD } 50\,000$$

9. The total welfare loss is equal to triangle C.

Society loses because the government must pay out a subsidy equal to B + C. However, area B is transferred back to domestic firms as producer surplus. Therefore, the net loss of the subsidy is triangle C.

$$\text{Triangle C} = \frac{1}{2} (10\,000 - 5000) \times \text{USD } 3$$

 = USD 7 500.

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## International Mindedness

Government policies designed to solve particular problems domestically can often affect other countries. For example, US cotton subsidies can significantly affect the economies of other cotton-producing countries. To what extent does the USA have an obligation to ensure domestic government policies do not also affect other countries?

**Complete section with 3 questions**

[Start questions](#)

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4. The global economy / 4.2 Types of trade protection

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# Administrative barriers

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Countries may choose to protect their domestic markets from the import of goods and services not deemed of adequate quality, or there may be bureaucratic barriers preventing foreign producers from exporting their goods and services.

These are known as administrative or non-tariff barriers to trade. There are standards and regulations in place in order to effectively manage these goods and services and to hold foreign producers to account. These include:



Glossary

Reading  
assistance

- Product standards
- Voluntary export restraints
- ‘Buy National’ policies

## Product standards

A country may create product standards, laws or regulations to protect the quality of a product and the health and safety of consumers in the domestic market. For example, many countries regulate the automobile manufacturing industry by setting safety standards for cars, such as airbags, seat belts and bumpers. If car manufacturers produce cars for export markets abroad, they must ensure they meet the safety standards of each country: for example, in Switzerland all cars must have a stop light in the back window, while other countries require airbags or impose regulations on car exhaust emissions.

Product standards may not necessarily discriminate against importers, but they can be designed to protect domestic firms. In January 2020, India announced it would introduce stricter quality product standards for 371 non-essential items (<https://www.livemint.com/news/india/centre-gears-up-to-place-restrictions-on-non-essential-imports-11577987657909.html>), such as toys and plastic goods from countries including China. The government stated that the new standards will help narrow the trade deficit of \$53.6 billion with China.

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### Making connections

As you might recall from subtopic 2.8 (<https://study/app/pp/sid-186-cid-754025/book/the-big-picture-id-29875/>) on market failure, governments can use regulations to solve externalities. Enforcing product standards on imports is an important tool to protect the domestic economy. In the USA, many people found their dogs were getting sick. After an investigation, the USA discovered that some imports of dog food contained melamine, a chemical that causes kidney failure. Foreign producers of dog food were adding melamine to boost the protein content of the dog food.

### Case study

#### Why are product standards important?

Product standards are a way to protect consumers from goods produced beyond the regulatory checks of the domestic government. For example, the Monsanto company is an agricultural and biotechnology firm which produces seeds, fertilisers and pesticides (today, the company is under the ownership of Bayer as of 2018). During

World War II, soldiers had to endure harsh conditions that became a breeding ground for lice carrying the disease typhus. Monsanto developed a strong pesticide known as DDT that killed the lice very effectively. It was a strong poison and was often directly administered to the body.



**Figure 2.** During World War II, DDT was administered directly to the body to kill lice.

Source: "DDT WWII soldier ([https://commons.wikimedia.org/wiki/File:DDT\\_WWII\\_soldier.jpg](https://commons.wikimedia.org/wiki/File:DDT_WWII_soldier.jpg))" is licensed under Public Domain

Governments soon noticed an increase in cancers and birth defects, and were convinced these cases were a result of DDT use. Product standards were introduced in many countries to prohibit DDT being imported to protect consumers from its toxic effects: for example, Hungary in 1968, Norway and Sweden in 1970, the UK in 1985 and Singapore in 1985. Although it is illegal to sell DDT in the USA, Bayer-Monsanto still produces DDT in the USA for export to India and China.

Bayer-Monsanto's export markets for DDT disappeared almost completely by the end of the 1980s. But it was determined not to let that happen to other pesticides in its product line. Until now. In May 2019, courts ruled that Monsanto's glyphosate-based Roundup herbicide caused, or significantly contributed to, the onset of non-Hodgkin's lymphoma, a life-threatening immune system cancer. But this was a difficult fight. After clinical trials to test the toxicity of Roundup, Monsanto claimed 'Glyphosate-based herbicides do not cause cancer.' Monsanto stepped up its defence with a public relations offensive. Monsanto marketed Roundup as 'safe enough to drink.' In March 2015, a Monsanto representative stated in an interview that 'Roundup is not causing cancer. You can drink a whole quart of it, and it won't hurt you.' The journalist replied, 'Would you like to drink some? I have some.'

Watch his response below.

GMO Advocate Says Monsanto's Roundup Safe to Drink, Then!

Student view



During the 2019 court proceedings, it was uncovered that Monsanto lied about Roundup, suppressed evidence and harassed scientists to manipulate lab results. The court concluded that Monsanto marketed Roundup as 'safe', knowing full well that it was a likely carcinogen.

Consider this question:

1. Host a debate in your class. Debate the topic 'Product standards are a legitimate barrier to trade'. Try to refer to real-life examples to help your side win.

Find out more about Monsanto here:

[New York Times stories about Monsanto](https://www.nytimes.com/topic/company/monsanto-company)

Home  
 Overview (/study/app-186-cid-754025/)

[Independent stories about Monsanto ↗](https://www.independent.co.uk/topic/monsanto) (<https://www.independent.co.uk/topic/monsanto>)

[French court finds Monsanto guilty of poisoning farmer ↗](https://www.theguardian.com/business/2019/apr/11/french-court-finds-monsanto-guilty-of-poisoning-farmer) (<https://www.theguardian.com/business/2019/apr/11/french-court-finds-monsanto-guilty-of-poisoning-farmer>)

## Voluntary export restraints

When Japan started developing its automobile industry during the second half of the 20th century, US car manufacturers became increasingly concerned with the threat from competition. Particularly, cities like Detroit would be very badly affected. As a result, the US government approached Japan to try to come to an arrangement to protect its industry. They managed to negotiate a limit to Japanese exports of cars to the USA, which is also known as a voluntary export restraint (VER), when the exporting country voluntarily agrees to reduce the volume of exports.



Figure 3. Toyota is one of Japan's biggest car manufacturers.

Credit: Getty Images Robert Hradil / Stringer

### ⊕ International Mindedness

When countries place trade barriers such as tariffs on one another, it can quickly escalate and potentially harm their economies. A VER is a way for countries to be diplomatic and negotiate a bilateral agreement for trade. A VER has many advantages, in that it creates positive relationships between trading partners.

Student view

## 'Buy National' policies

A country may choose to adopt a Buy National campaign to encourage consumers to buy goods from domestic producers. For example, Australia introduced the '[Australian Made ↗](https://www.australianmade.com.au/)' campaign to promote local growers, manufacturers and craftspeople. A study in Australia found that 90 per cent of Australians are 'more likely to buy products labelled Made in Australia'. The purpose of a Buy National campaign is to utilise patriotic feelings to encourage consumers to support the economy.

One challenge with a Buy National campaign is that it is hard to know the origins of many goods and services because many products are produced in several different countries. For example, British clothing brands may be designed in the UK, but the clothes themselves are produced in China with cotton grown in the USA. In addition, British industries are often owned by foreign companies. The iconic Mini cars are produced in British factories, but owned by a German car maker.

## Activity

Create your own 'Buy National' campaign. Identify five products that are uniquely owned and produced within your country. As a group, create a digital advertisement for your school newspaper to kickstart your campaign.



**Figure 5.** Advertising for the Buy British Campaign.

Credit: Getty Images FPG / Staff

Look at the example above. Make sure you persuade consumers by reminding them of the benefits to 'Buy National'.

**Complete section with 3 questions**

[Start questions](#)

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[Next section ▶ \(/study/app/pp/sid-186-cid-754025/b\)](#)