

Ch 9: Application: International Trade

Who gains, who loses, and what a tariff costs

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EC 111 Principles of Microeconomics, Bentley University, Fall 2026

From surplus to trade

Chapter 3

Comparative advantage: trade lets both sides gain

Chapter 7

Surplus: gains measured in **dollars**

Chapter 9

Open one market to the world

Who **gains**, who **loses**, by how much?

What does a **tariff** cost?

Question

Check the label on your shirt.
Where was it made?

What would you give up to make your own clothes?

The world price

World price, P_W

The price of a good in world markets

P_D : the price **without** trade

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P_D : the price **without** trade

$P_D < P_W$: comparative advantage

⇒ **export**

$P_D > P_W$: advantage abroad ⇒

import

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World price, P_W

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 $\Rightarrow$ **export**

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import

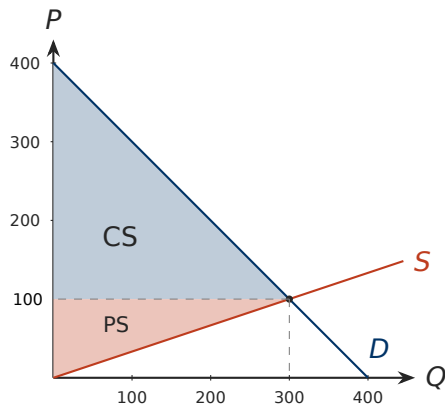
Small economy

A **price taker** in world markets:
what it buys or sells does not
move P_W

With free trade, P_W is the only
price:

no seller takes less than P_W
no buyer pays more than P_W

The running market, closed to trade



$$Q_d = 400 - P \cdot Q_s = 3P$$

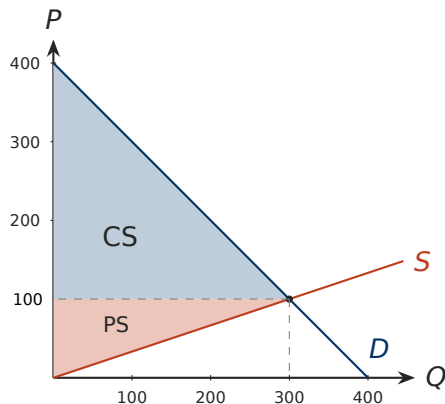
No trade: $P_D = \$100$, $Q = 300$

$$CS = \frac{1}{2} \times 300 \times 300 = \$45,000$$

$$PS = \frac{1}{2} \times 300 \times 100 = \$15,000$$

$$TS = \$60,000$$

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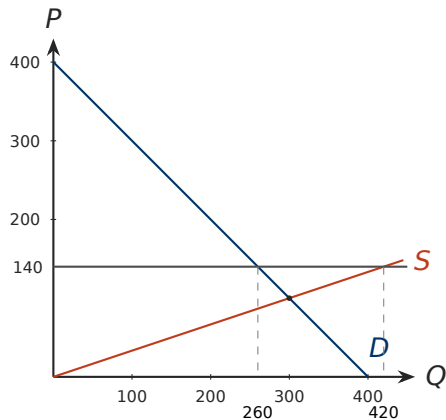
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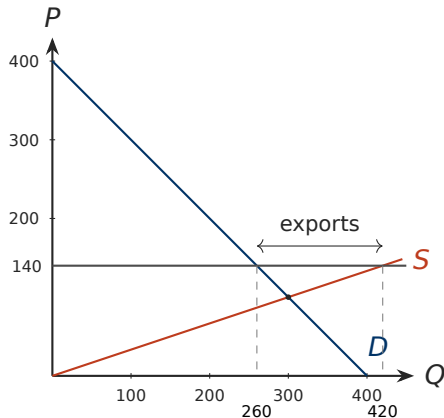
The world price is \$140. Do we export or import?

World price \$140: we export



$P_D = 100 < P_W = 140$: we export

World price \$140: we export



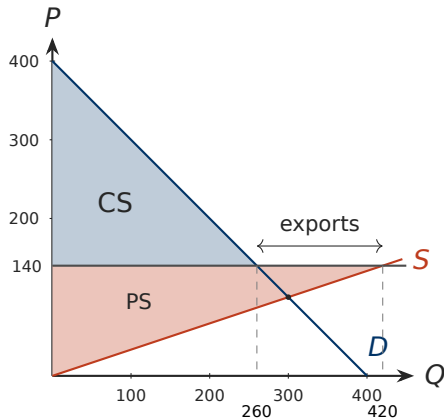
$P_D = 100 < P_W = 140$: we export

At \$140: buyers want $400 - 140 = 260$

sellers make $3 \times 140 = 420$

exports = $420 - 260 = 160$

World price \$140: we export



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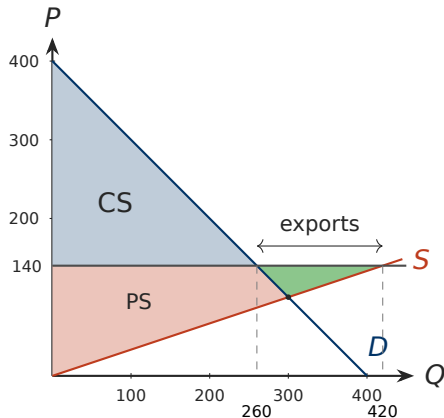
sellers make $3 \times 140 = 420$

exports = $420 - 260 = 160$

$CS = \frac{1}{2} \times 260 \times 260 = \$33,800$, down

$PS = \frac{1}{2} \times 420 \times 140 = \$29,400$, up

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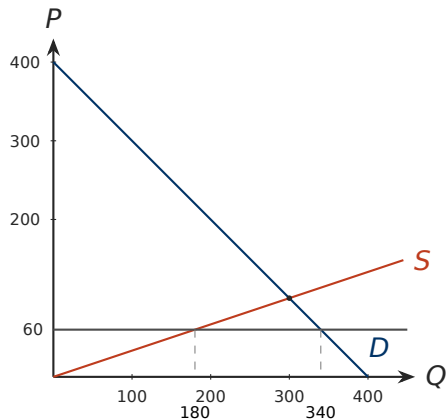
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TS = \$63,200, up **\$3,200**

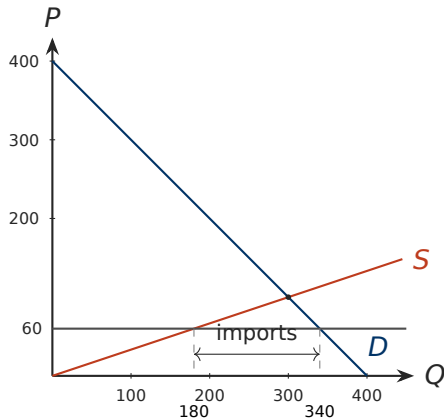
Gain = $\frac{1}{2} \times 160 \times 40$: the green triangle

World price \$60: we import



$P_D = 100 > P_W = 60$: we import

World price \$60: we import



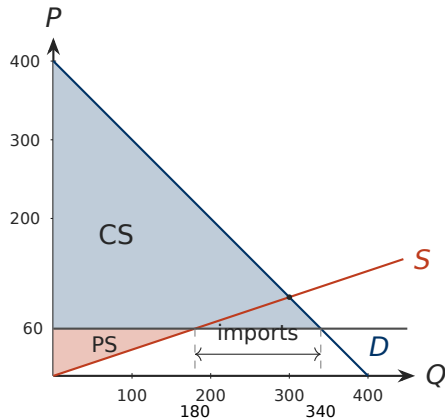
$P_D = 100 > P_W = 60$: we import

At \$60: buyers want $400 - 60 = 340$

sellers make $3 \times 60 = 180$

imports = $340 - 180 = 160$

World price \$60: we import



$P_D = 100 > P_W = 60$: we import

At \$60: buyers want $400 - 60 = 340$

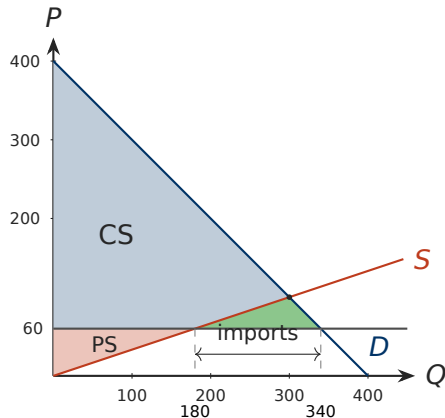
sellers make $3 \times 60 = 180$

imports = $340 - 180 = 160$

$CS = \frac{1}{2} \times 340 \times 340 = \$57,800$, up

$PS = \frac{1}{2} \times 180 \times 60 = \$5,400$, down

World price \$60: we import



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Winners and losers

	Exporter ($P_D < P_W$)	Importer ($P_D > P_W$)
Domestic price	rises to P_W	falls to P_W
Consumer surplus	falls	rises
Producer surplus	rises	falls
Total surplus	rises	rises

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Trade always creates **losers**

The winners gain more than the losers lose

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So the winners **could** compensate the losers and still be ahead

They usually do not: that is why trade policy is a fight

Question

(a) When Romania opened to trade, the price of **corn** in Romania nearly doubled.

(b) When Romania opened to trade, the price of **chocolate** in Romania fell.

For each: who has the comparative advantage? Export or import? Who gains, who loses? Does Romania gain overall?

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The losers are concentrated: the China shock

China's share of world
manufacturing exports

1990: 2.8% 2015: 18.5%

U.S. share, 2000 to 2011: 14% →
8.6%

U.S. manufacturing jobs lost to
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600,000 to 1 million

Hanson (2021), *Foreign Affairs*, on his work
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Buyers everywhere gained:
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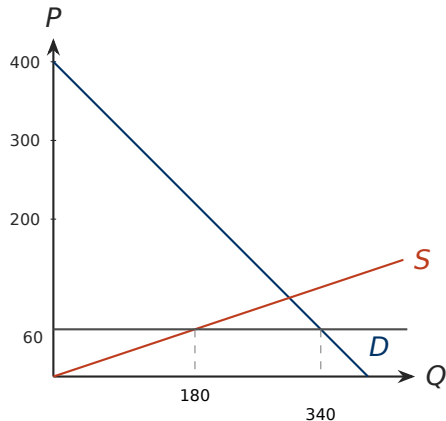
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The Ch 9 diagram is right about the total. It says nothing about who bears the loss

A tariff

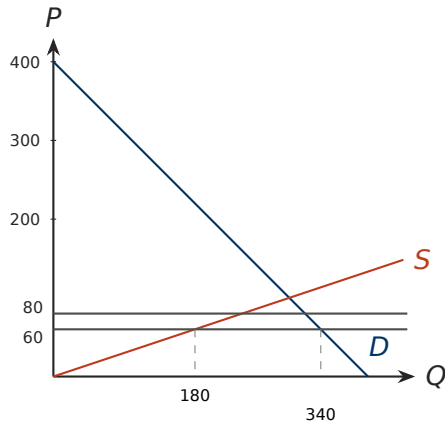


Tariff

A tax on imported goods

Free trade at $P_W = \$60$: imports 160

A tariff



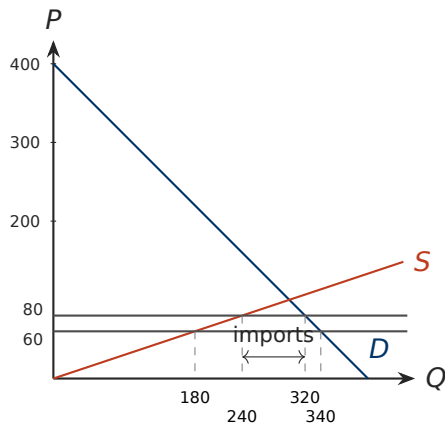
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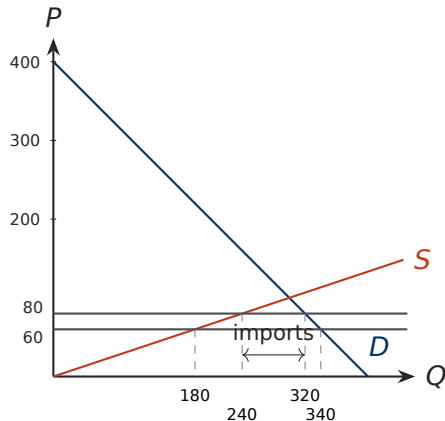
A \$20 tariff: domestic price rises to **\$80**.
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Buyers want $400 - 80 = 320$

Home sellers make $3 \times 80 = 240$

Imports fall to $320 - 240 = \mathbf{80}$

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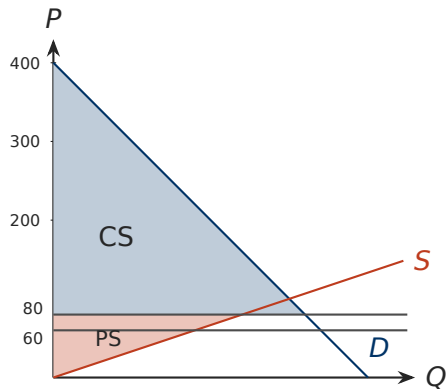
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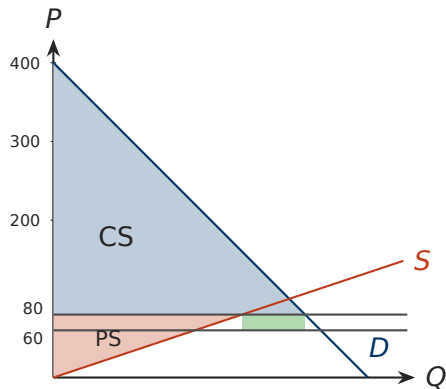
The market moves back toward no trade

What the tariff costs



	Free trade	Tariff	Change
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Revenue	0	1,600	+1,600
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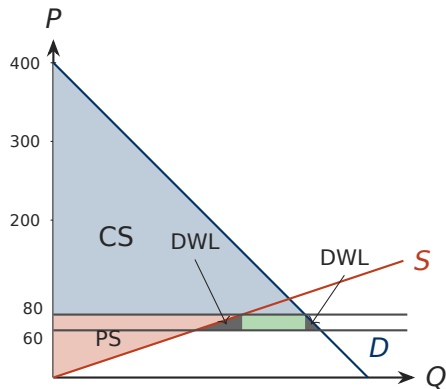
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Deadweight loss, two triangles:

$\frac{1}{2} \times 60 \times 20 = 600$: units made at home for more than \$60

$\frac{1}{2} \times 20 \times 20 = 200$: buyers who valued it above \$60 no longer buy

Import quotas

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A quota of 80 units in our market:

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- same CS, PS and deadweight loss as the \$20 tariff

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Unless the government **auctions**
the licenses

Gains the diagram leaves out

More variety

German cars and Japanese cars,
not only American

Economies of scale

Firms sell to the world market, not
one country

Competition

Foreign rivals limit domestic firms'
market power

Productivity

Resources move to the most
productive firms

Ideas

Technology spreads through
traded goods

Arguments for restricting trade

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- **“A bargaining chip.”** If the threat fails, we choose between backing down and hurting ourselves

Trade agreements and the WTO

Unilateral: cut your own barriers

19th-century Britain; Chile, South Korea

Multilateral: cut together

NAFTA (1993), now USMCA (2020)

GATT: average tariff 40% → 5%; the
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Question

“The cost of these tariffs falls mainly on American households.” Agree, disagree, uncertain? Use the tariff diagram.

Exam-style: open the Ch 7 market

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$Q_d = 90 - P$, $Q_s = 2P$ (no trade: $P = 30$, $Q = 60$, CS 1,800, PS 900). The world price is \$20.

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(b) $CS = \frac{1}{2} \times 70 \times 70 = 2,450$; $PS = \frac{1}{2} \times 40 \times 20 = 400$; $TS = 2,850$, up **150**
 $= \frac{1}{2} \times 30 \times 10$.

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(c) Price \$24: buyers 66, sellers 48, imports **18**; revenue $4 \times 18 = 72$.
 $DWL = \frac{1}{2} \times 8 \times 4 + \frac{1}{2} \times 4 \times 4 = 16 + 8 = 24$.

Summary

Free trade

- Compare the no-trade price with the world price
- $P_D < P_W$: comparative advantage, export. Sellers gain, buyers lose
- $P_D > P_W$: import. Buyers gain, sellers lose
- Either way total surplus rises: the gains exceed the losses
- The losses can be concentrated on particular workers and places

Restricting trade

- A tariff raises the domestic price: home sellers and the government gain, buyers lose more
- The deadweight loss: too much made at home, too little bought
- A quota does the same; the license holders get what the tariff would raise
- Most arguments for restrictions are weak; national security can be valid

Next: Ch 10, externalities.