Lecture 8b:

Tariffs in a large economy

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C181 – International Trade

Spring 2018

2- Tariffs in a small economy

Effect of tariffs?

Conclusion for a small open economy:

- Tariffs → net welfare loss

Next lectures:

- Tariffs in a large economy
- Why small economies would still have tariffs?
- How to constraint large economies to reduce tariffs?

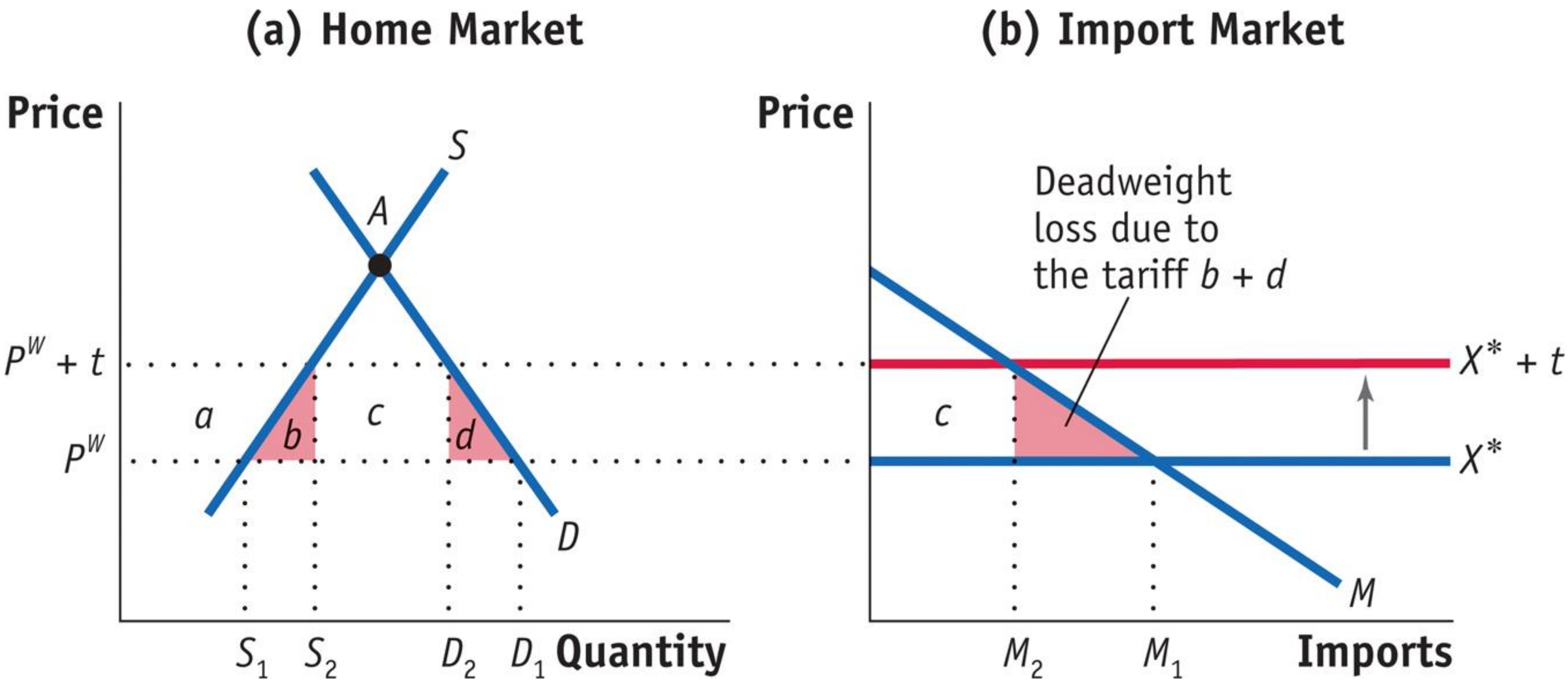
2- Tariffs in a small economy

Effect of tariffs?

NET effect **= - (b+d)**

$$= -\tfrac{1}{2}\,[(S_2 - S_1) + (D_1 - D_2)]\,.\,t$$

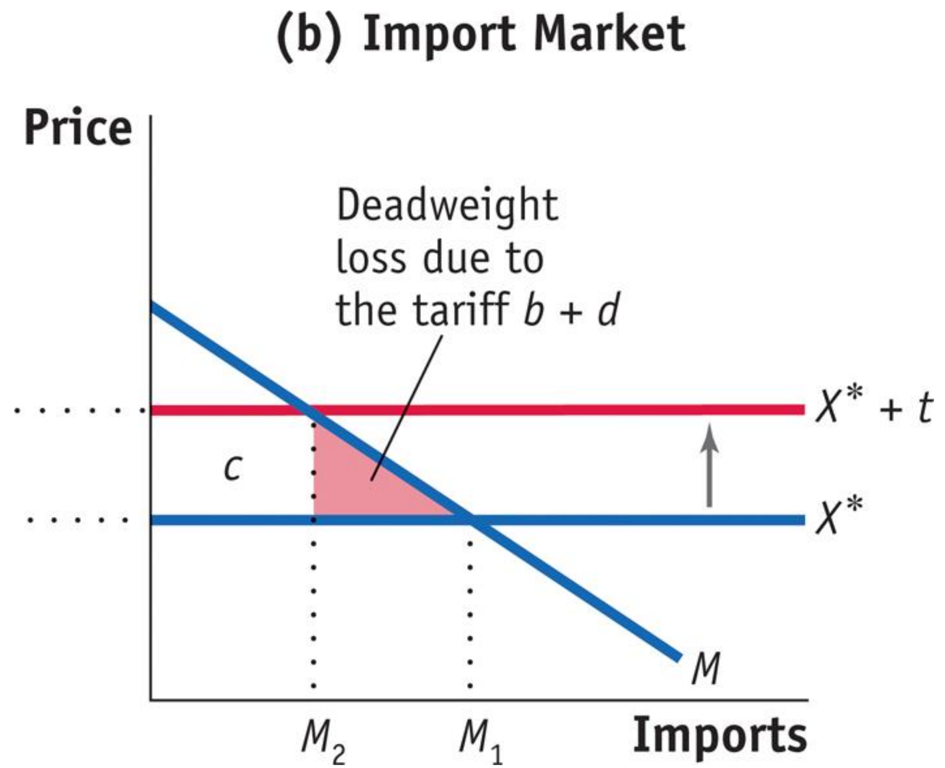
$$= \boxed{-\tfrac{1}{2}\,(M_1 - M_2)\,.\,t}$$



2- Tariffs in a small economy

NOTES: Prices in a small economy:

- World price P^W taken as given
- Imports depend on price
  ("M" curve = import demand)
- but export curve is flat:
  The price stays at P^W
  (+ added tax)



3- Tariffs in a large economy

“Large” economy

Definition:

- A large economy has an effect on world price:
  - Lower imports lead to lower prices
  - Larger imports lead to higher prices

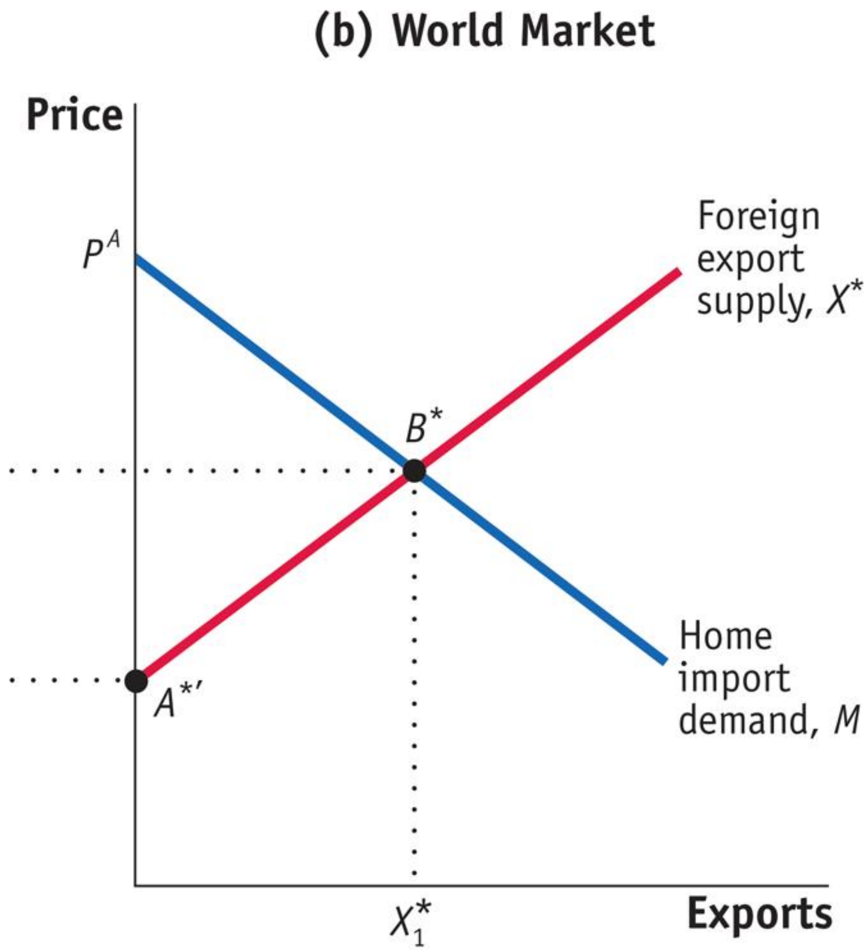
→ Upward-slopping export curve

→ **Tariffs** lead to a decrease imports and **lower P^W**

“Large” economy

Foreign supply is <u>no longer</u> **“infinitely elastic”**

(i.e. foreign supply curve no longer flat, world price no longer constant)



3- Tariffs in a large economy

clicker question:

In a large economy, an increase in tariffs leads to:

a) A smaller loss in consumer surplus but a smaller gain in producer surplus (compared to a small economy)

b) A smaller loss in consumer surplus and a larger gain in producer surplus

c) A larger loss in consumer surplus but a larger gain in producer surplus

d) A larger loss in consumer surplus and a smaller gain in producer surplus

3- Tariffs in a large economy

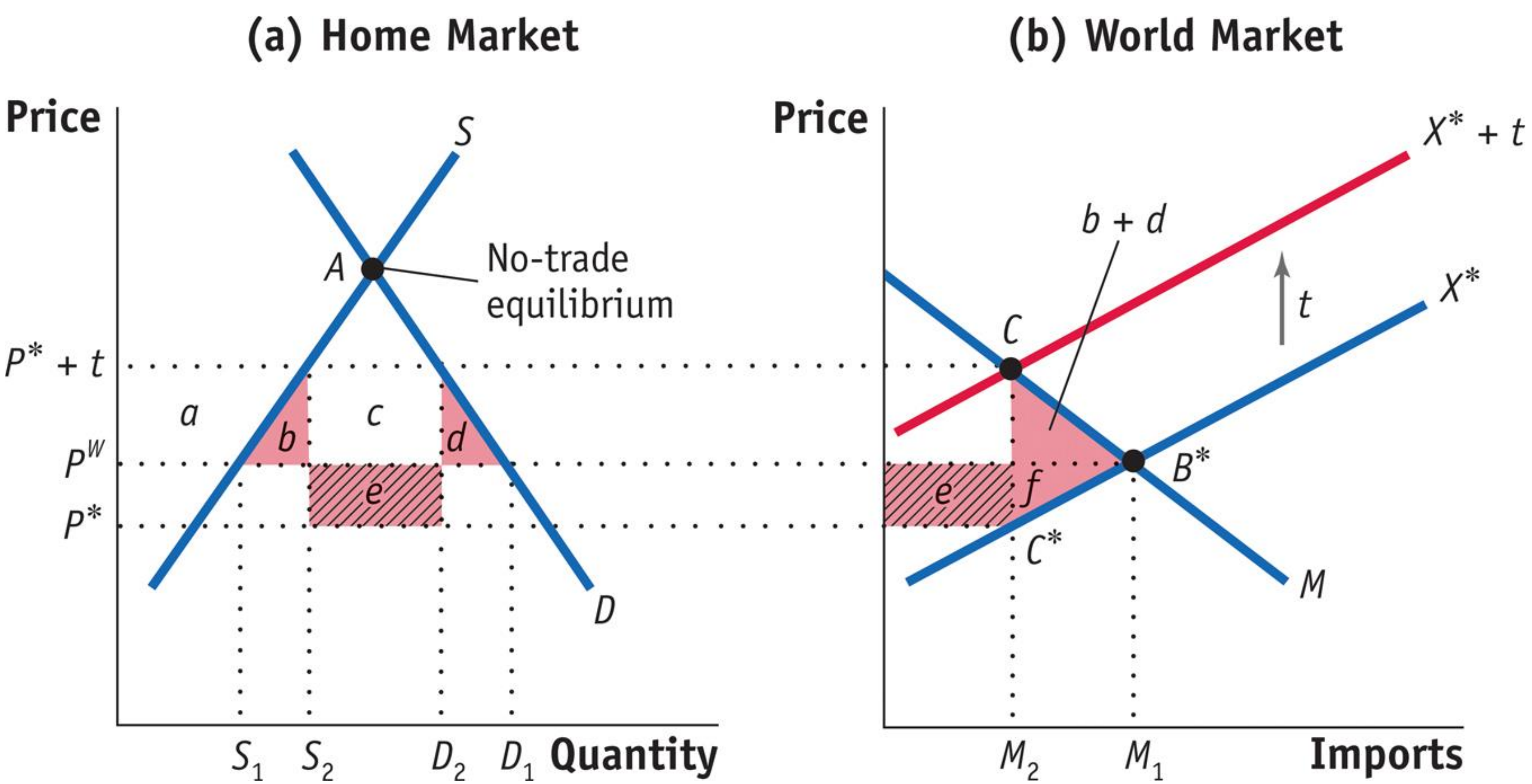
“Large” economy

Effect of a tariffs on prices:

- **Tariffs** lead to a decrease imports and **lower P^W**
- Hence the price for consumers does not increase as much as for a small economy
  → Smaller loss in consumer surplus
- Hence the price for consumers does not increase as much as for a small economy
  → Smaller gain in producer surplus
- Q: Can it be beneficial to have a tariff after all?

3- Tariffs in a large economy

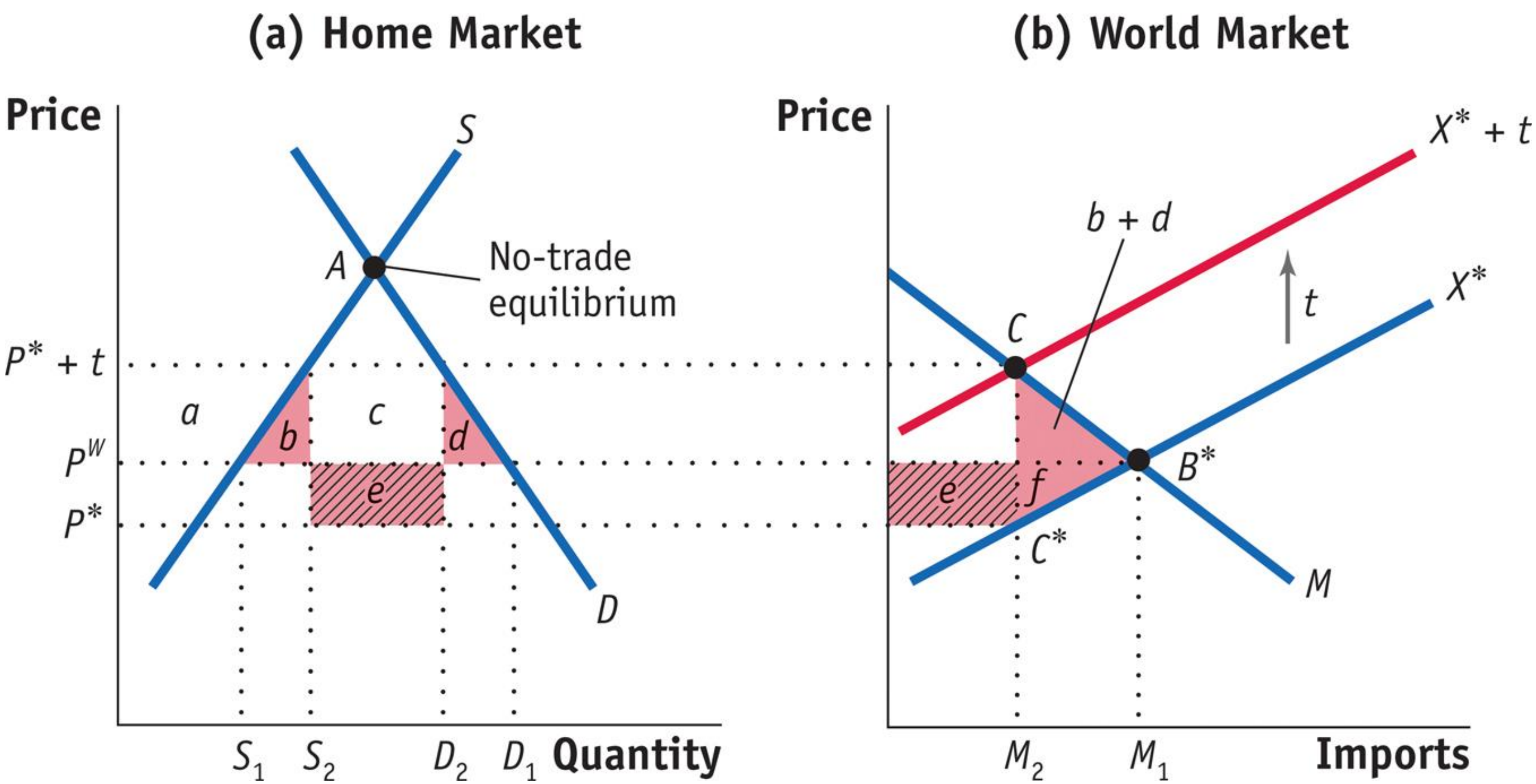
It’s all in this graph:



3- Tariffs in a large economy

- For **consumers**:

→ price goes from P^W to P^*+t

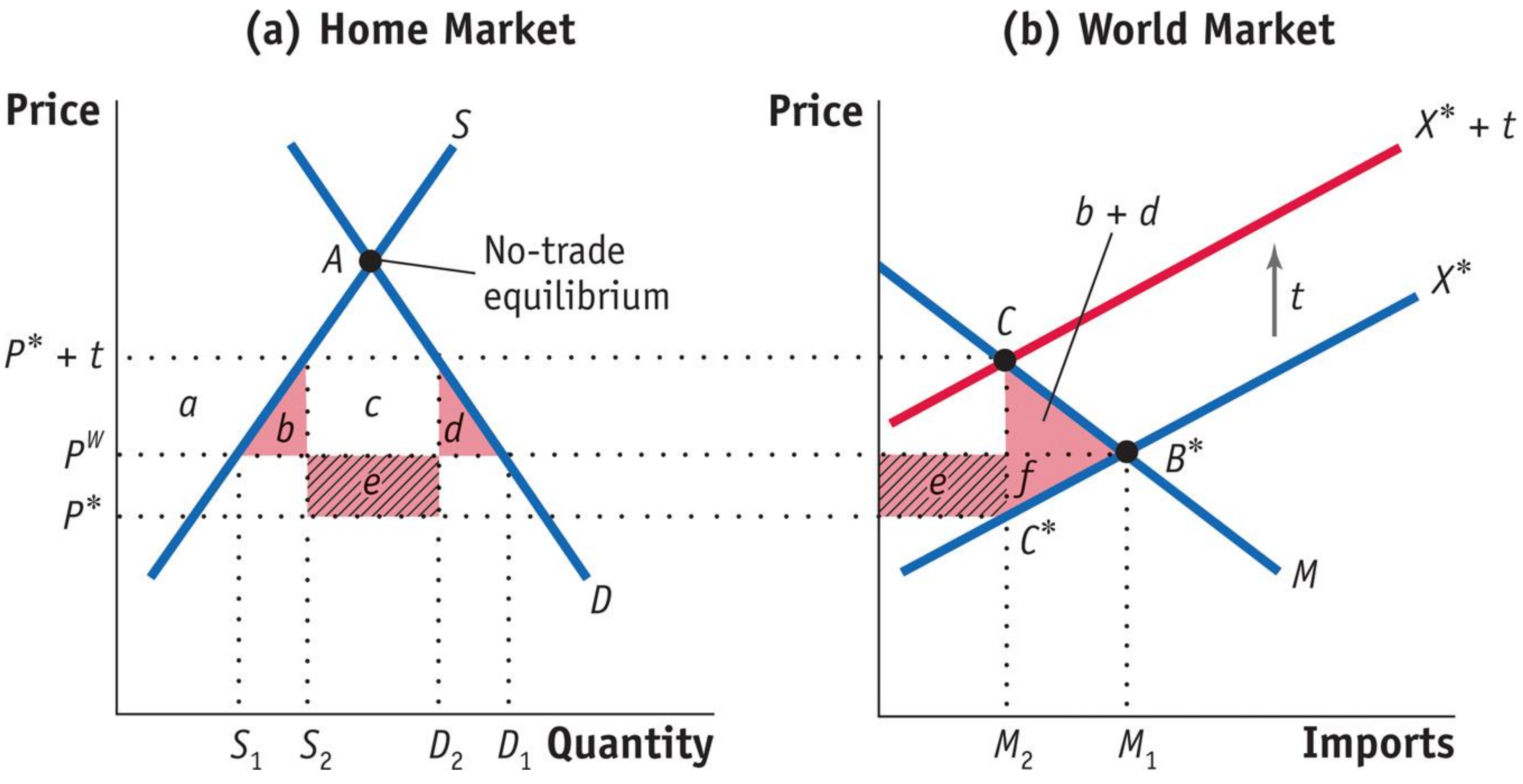


3- Tariffs in a large economy

- For **consumers**:

→ price goes from P^W to P^*+t

→ Consumer surplus decreases by **(a+b+c+d)**

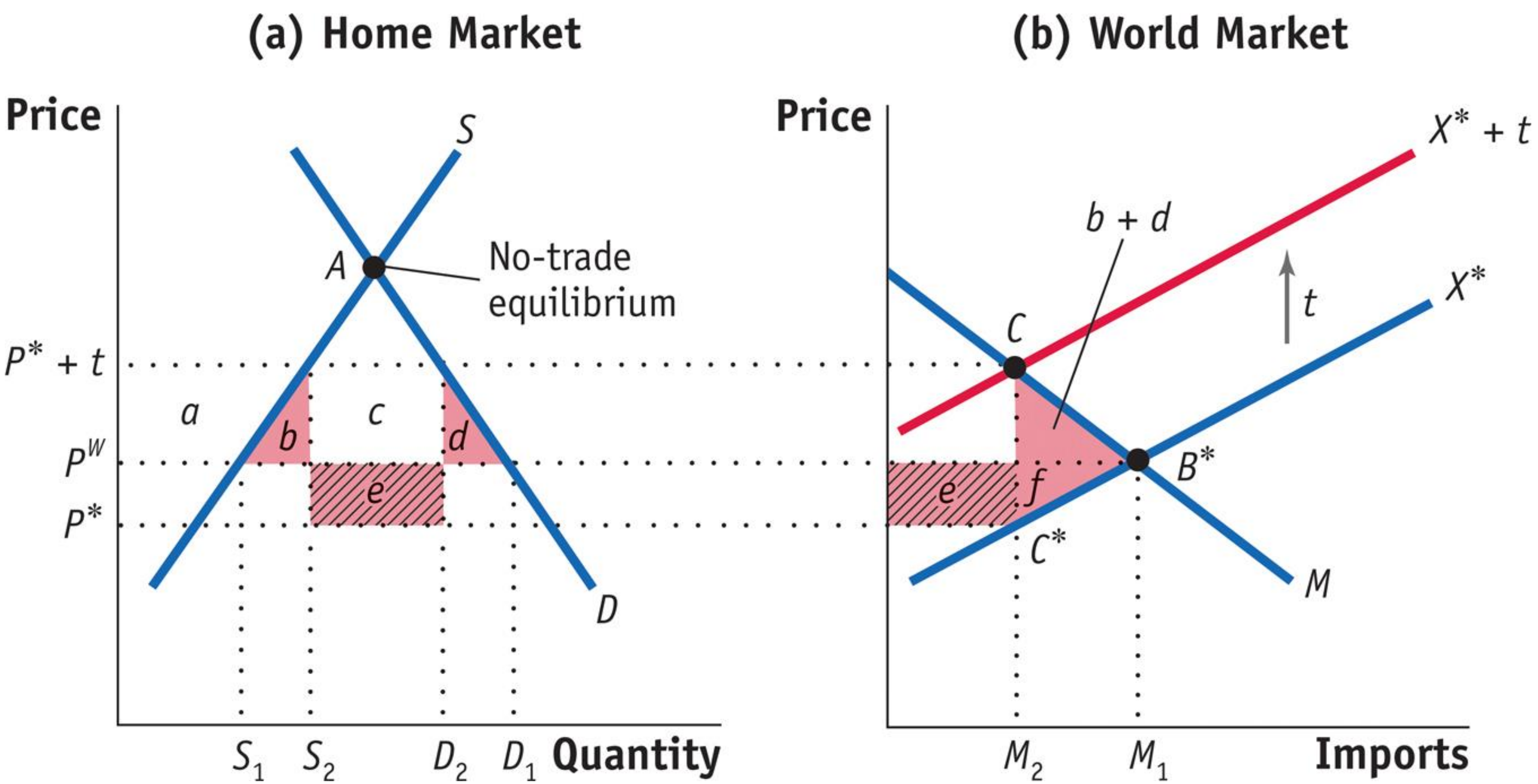


3- Tariffs in a large economy

- For local **producers**:

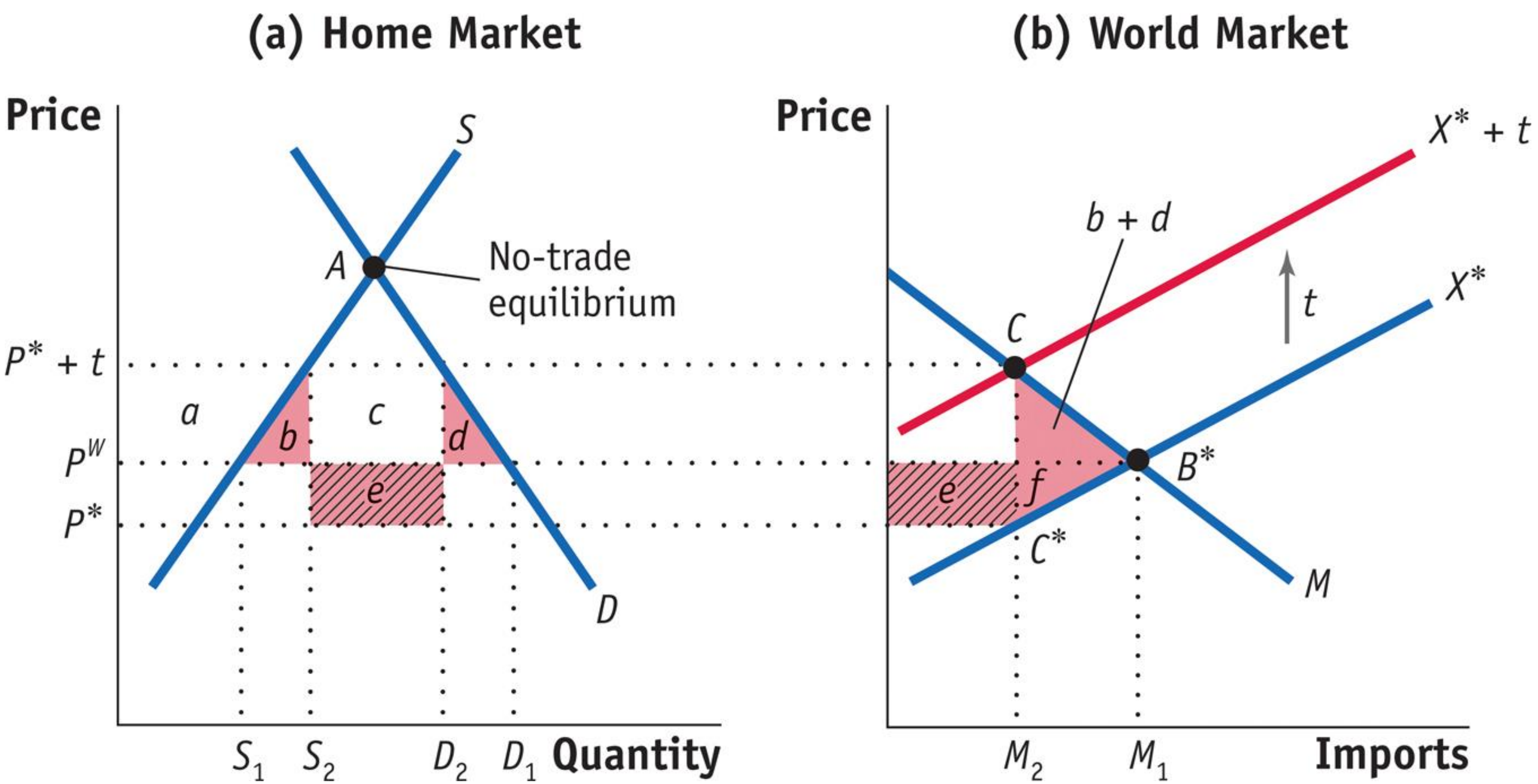
→ price goes from P^W to P^*+t

→ Producer surplus increases by: **a**



3- Tariffs in a large economy

- Tariff revenues?

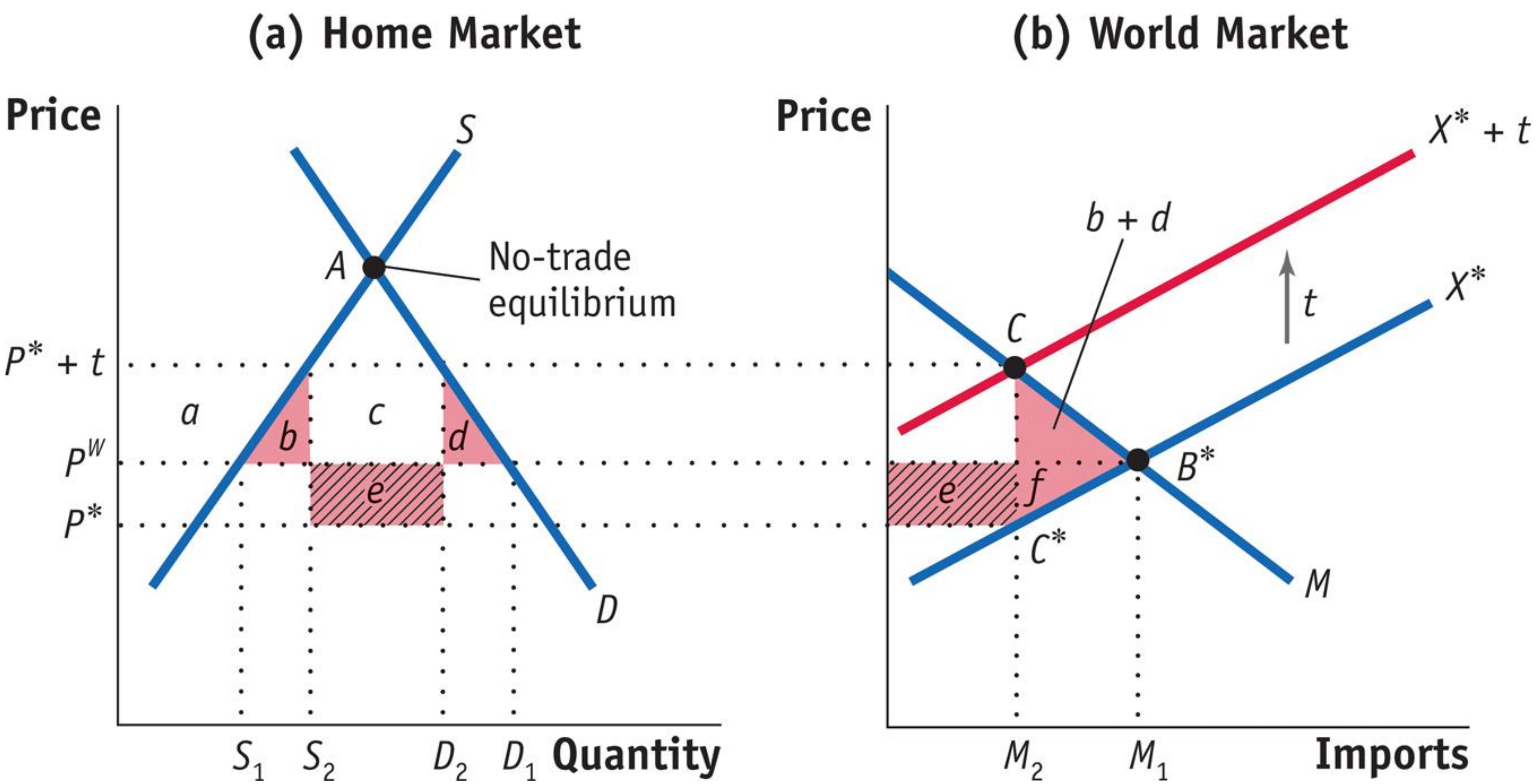


3- Tariffs in a large economy

- Tariff revenues?

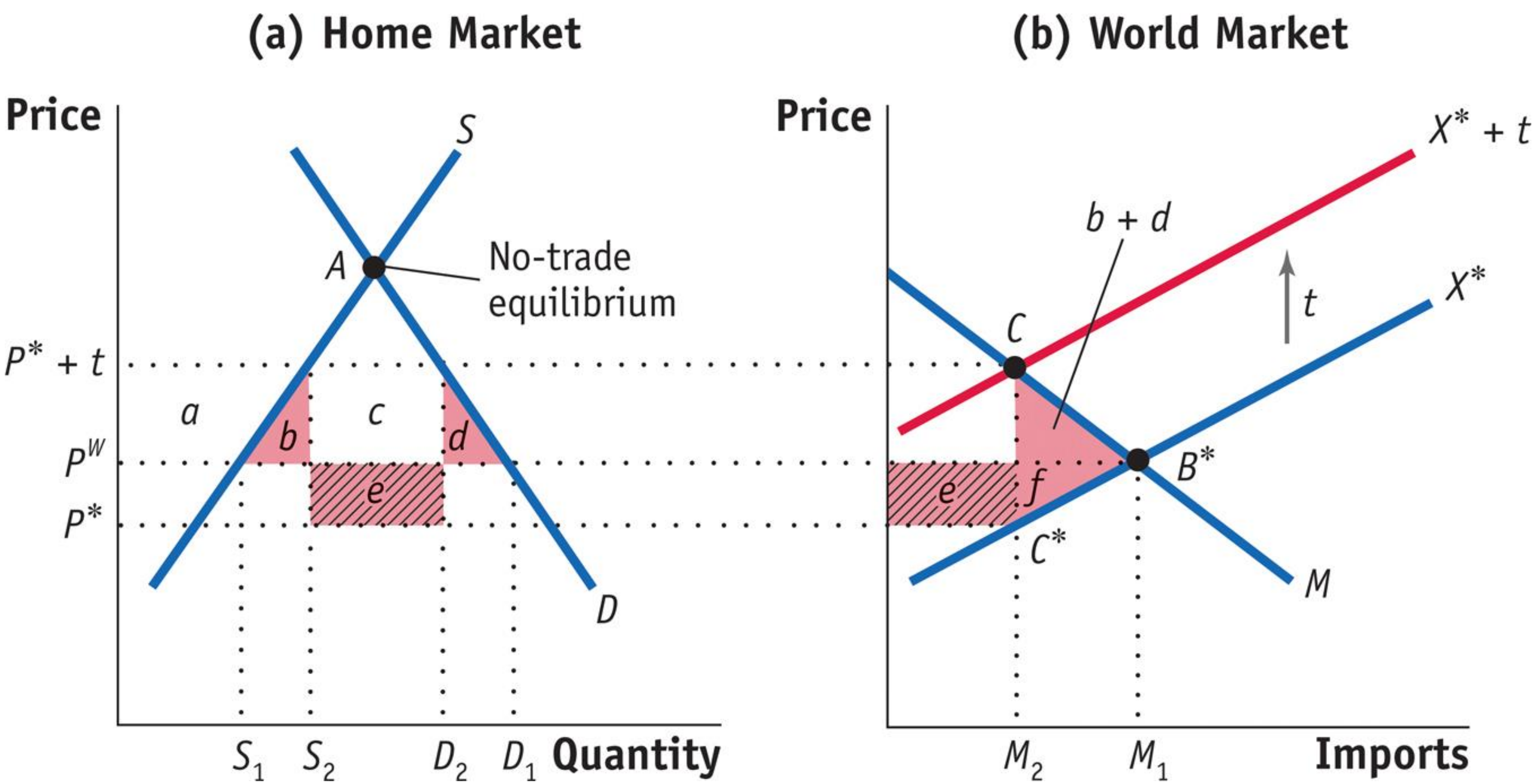
→ Revenues = t x (D2 – S2) = t x M2

→ area: **(c + e)**



3- Tariffs in a large economy

- Net effect on Home?



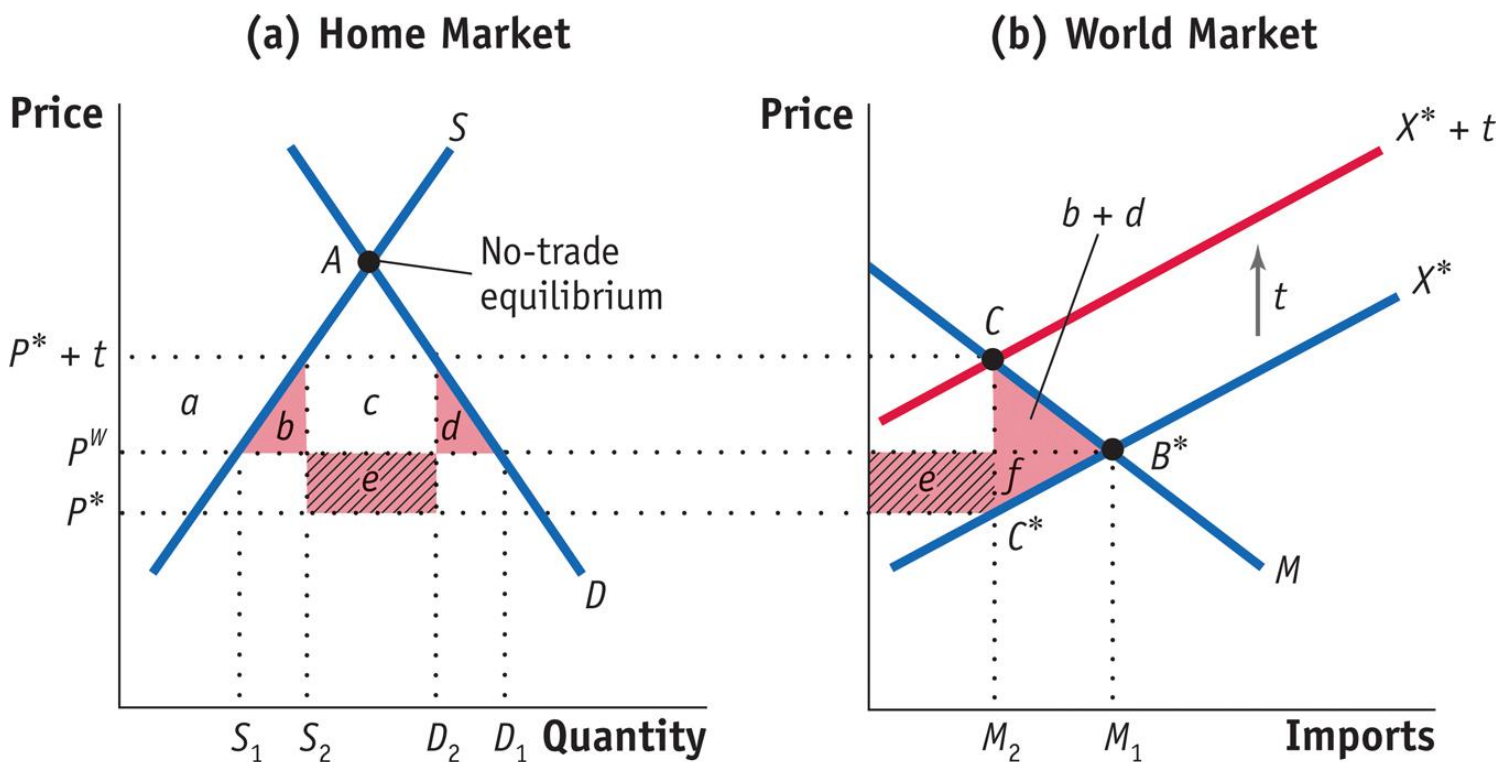
3- Tariffs in a large economy

Consumer loss: **- (a+b+c+d)**

Producer gain: **+ a**

Tariff revenues: **+ (c + e)**

→ Net effect on Home = **e – (b+d)**



3- Tariffs in a large economy

"Large" economy

Effect of a tariffs on prices:

- Deadweight loss "b+d" as in a small economy
- But terms of trade gain "e" dues to change in world price
- Which one wins?

3- Tariffs in a large economy

"Large" economy

Effect of a tariffs on prices:

When "t" is small:

- Terms of trade gain are proportional to "t" (product of "t" and current imports)
- Deadweight loss proportional to "t^2" (product of "t" and the *change* in imports)

→ Terms of trade wins when t is small
→ Gains from having a small tariff

3- Tariffs in a large economy

“Large” economy

Effect of a tariffs on prices:

When “t” is large:

- If price is now back to autarky:
  → Terms of trade gains are zero!
  (No imports! No tariff revenues)
- Large deadweight loss

→ Negative net effect

3- Tariffs in a large economy

"Large" economy

Optimal tariff:

- Not zero, not too large either
- High elasticity of export supply → lower optimal tariff
- Formula: $$\text{Optimal tariff} = \frac{1}{E_X^*}$$

depends on the inverse of the export supply elasticity

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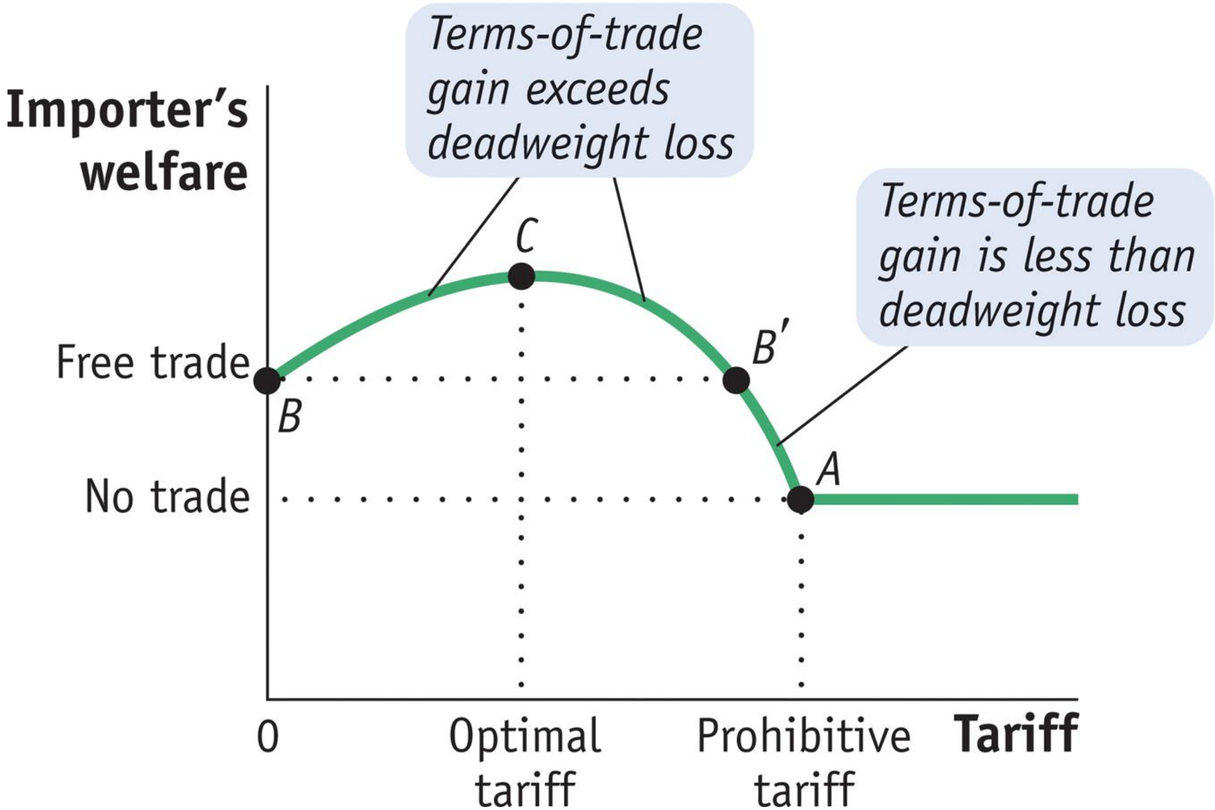
“Large” economy

$$\text{Optimal tariff} = \frac{1}{E_X^*}$$



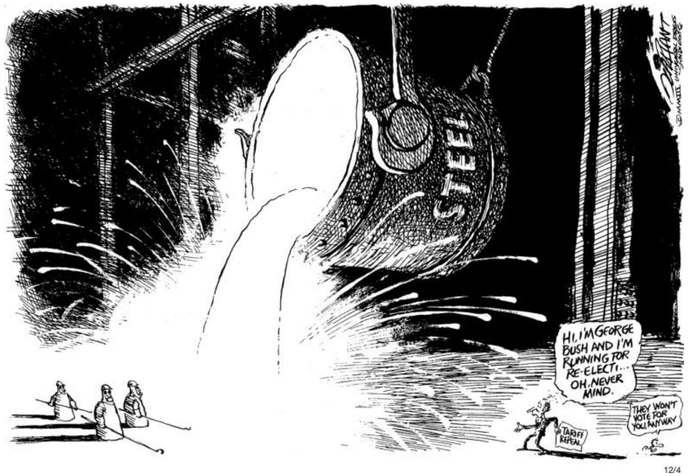
3- Tariffs in a large economy

“Large” economy

Link to monopsony pricing:

- a “small” buyer has no incentives to deviate from market price: it is “price taker” (=small country)
- A large buyer wants to limit its demand in order to lower the price = large economy which can affect P^W
- The smaller the price elasticity, the larger the distorsions

3- Tariffs in a large economy



Application to the steel industry in the US:

Tariffs imposed in 2002-03

Product Category	Elasticity of Export Supply	Optimal Tariff (%)	Actual Tariff (%)
Alloy steel flat-rolled products	0.27	370	30
Iron and steel rails and railway track	0.80	125	0
Iron and steel bars, rods, angles, shapes	0.80	125	15–30
Ferrous waste and scrap	17	6	0
Iron and steel tubes, pipes, and fittings	90	1	13–15
Iron and nonalloy steel flat-rolled products	750	0	0

3- Tariffs in a large economy

"Large" economy

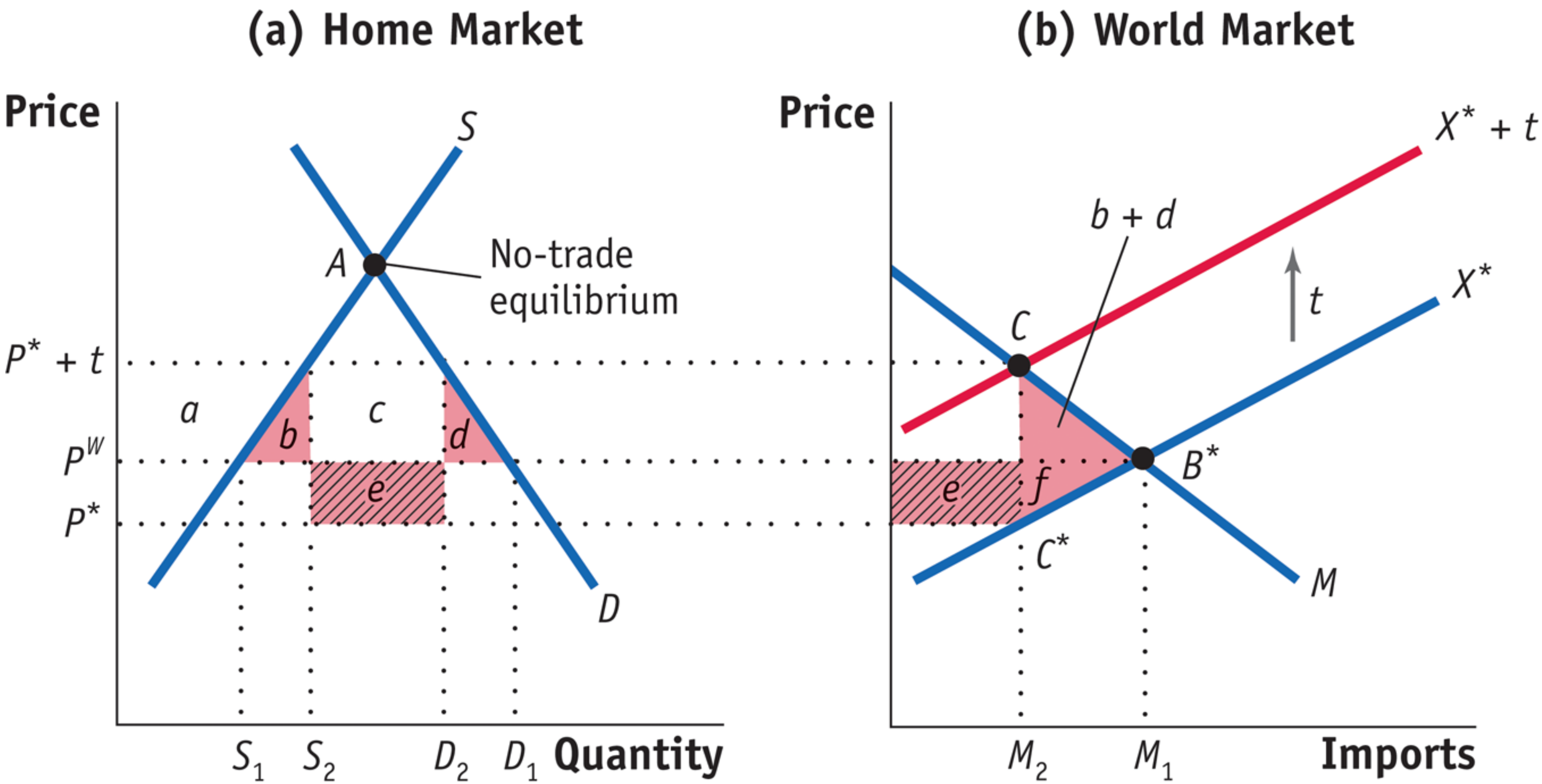
Effect on Foreign:

How do tariffs at home affect foreign economies?

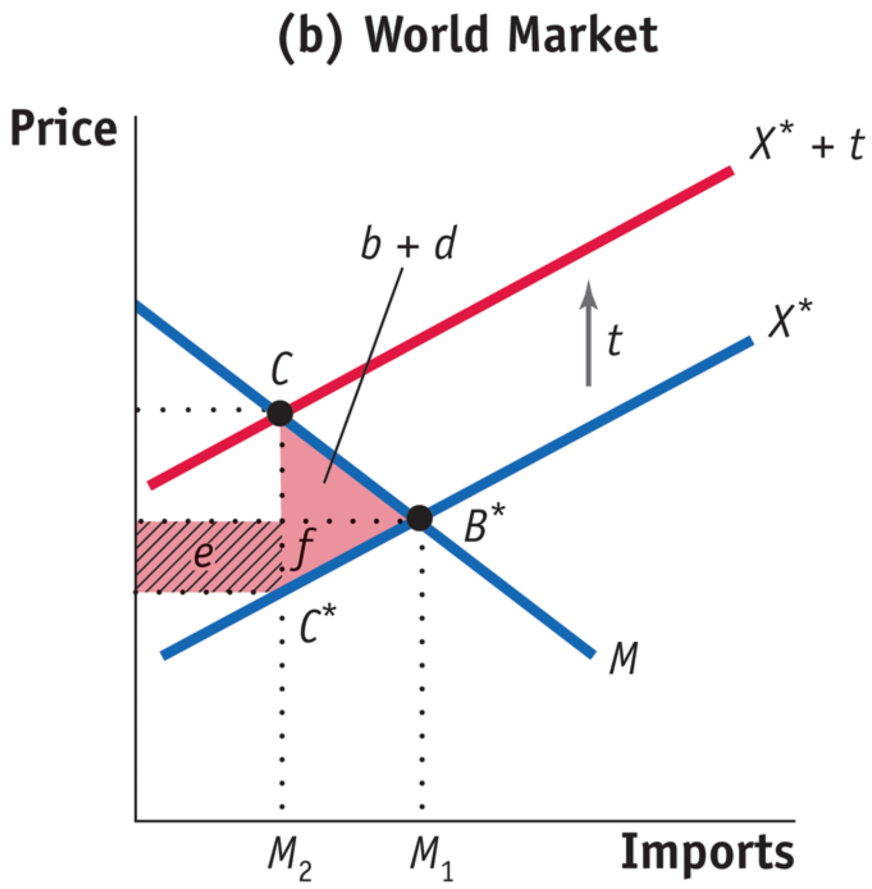
a) Gains for Foreign

b) Loss for Foreign, smaller than gains at Home

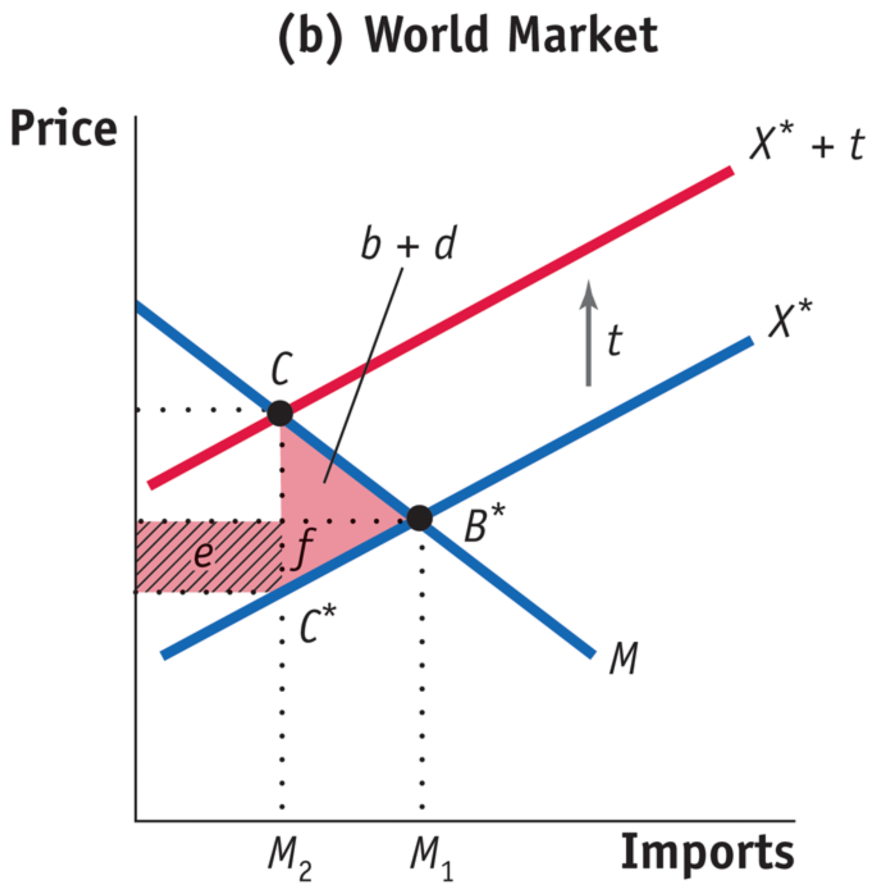
c) Loss for Foreign exceeds gains at Home



Home gains = e - (b + d)



Foreign gains?



Foreign gains = - (e + f) < 0

(i.e. loss: decrease in <u>exporter</u> surplus!)

3- Tariffs in a large economy

Effect of tariff:

- Home gains:

  = e - (b + d)

- Foreign loss:

  = - (e + f)

- Net GLOBAL gains if both apply tariffs on imports:

  = - (f + b + d) < 0

3- Tariffs in a large economy

“Large” economy

Effect on Foreign:

How do tariffs at home affect foreign economies?

Large losses: the loss for foreign economies exceed the gains for the home country

➔Overall gains from reducing tariffs on a bilateral or multilateral basis

“Tariffied” – Planet Money

Link: (or google search “planet money tariffied”):

https://www.npr.org/sections/money/2018/04/13/602300490/episode-835-tariffied

Lollipop War – Planet Money

Link: (or google search “planet money lollipop”):

http://www.npr.org/sections/money/2013/04/26/179295426/episode-454-the-lollipop-war