EC3355: International Trade
Trade policy

Stijn van Weezel

Department of Economics
Royal Holloway, University of London

Before reading week

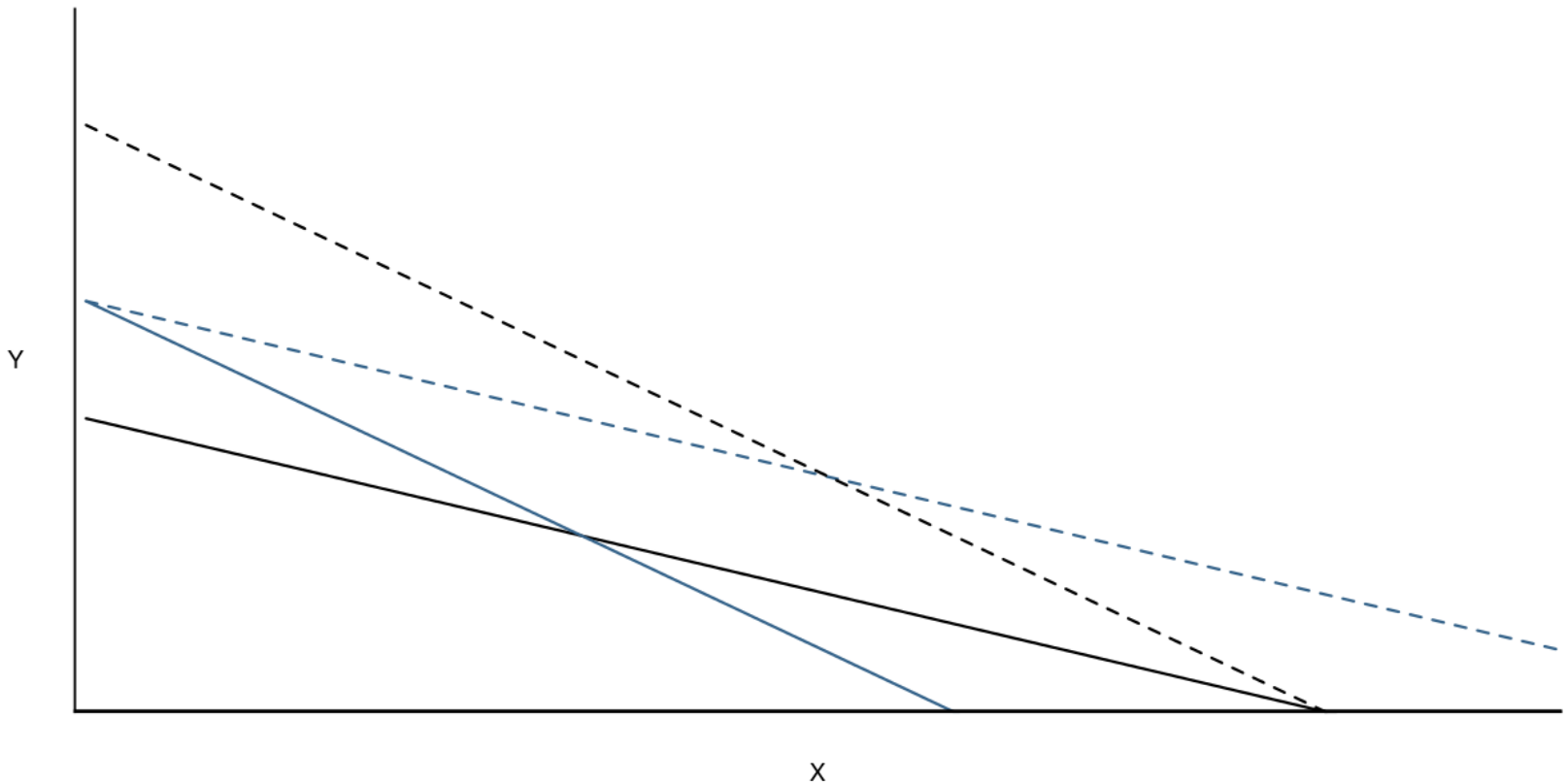
1. Trade patterns
   - Increase in trade over time
   - Composition of trade has changed over time
   - Gravity model can help us explain trade flows between countries
2. Theoretical models of trade
   - Trade patterns can be explained by comparative advantage (Ricardian model)
   - Factor mobility explained adverse effects of trade (Specific factors model)
   - Comparative advantage can be explained by factor endowment (Heckscher-Ohlin model)

Ricardian model

- Countries can trade due to technological differences
- Countries can always gain from trade
  - Even a country that is rubbish at everything
- Trade pattern driven by comparative advantage
- Trade leads to complete specialisation
- Everyone weakly benefits from trade

Ricardian model

Shift in PPF as result of free trade

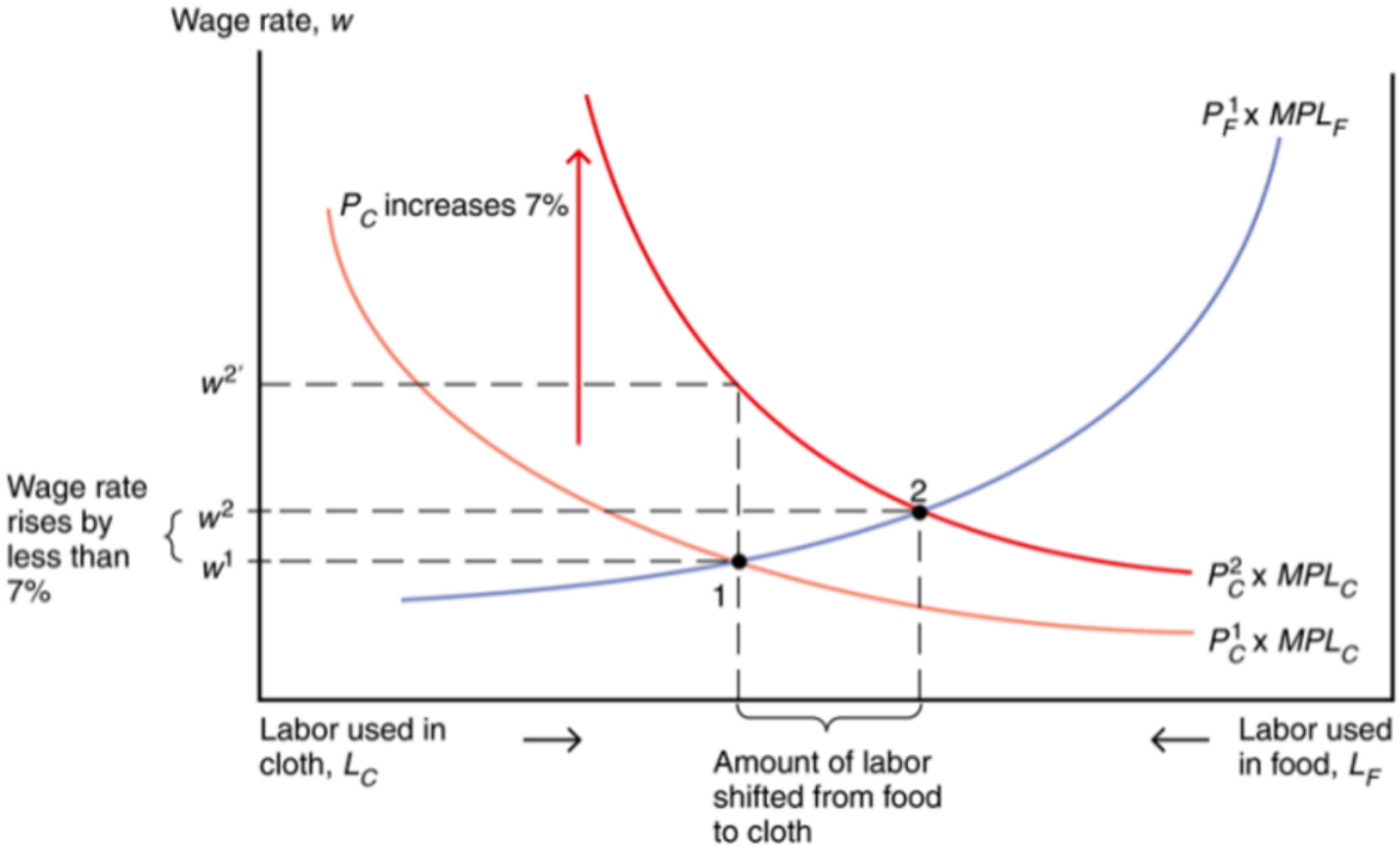


Specific factors model

- Same technology in all countries
- Countries have a different factor mix
- Differences in factor mix causes countries to specialise
- Short run model that allows trade to affect income distribution
- Factor prices change as a result of trade

Specific factors model

Increase in price of cloth

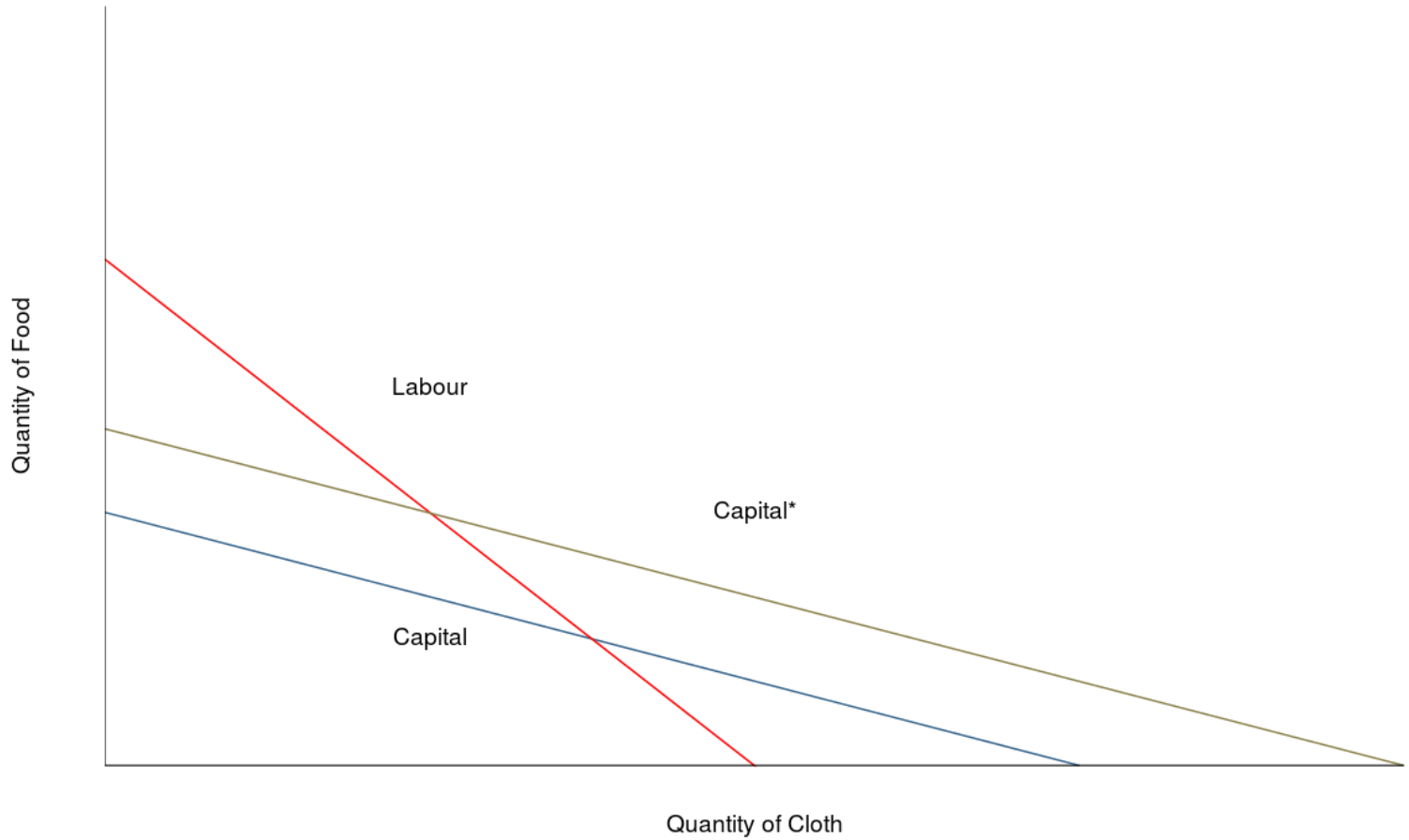


Heckscher-Ohlin model

- Production and trade patterns are based on factor endowments
- Focuses on long-term effects of trade
- All factors are mobile without costs
- Countries with relatively more of a resource will export goods for which that resource is more useful in production
- Equalisation of factor prices

Heckscher-Ohlin model

Rybczynski theorem



Course in a nutshell

What the course taught so far

- Reasons why nations trade
- Whether trade is good or bad
- How trade affects income distributions

Course in a nutshell

What the course will focus on in the coming weeks

- Trade policy
- Political economy of trade
- International trade and developing countries
- Effect of trade on income, inequality, and the environment

Course in a nutshell

What I deprived you of

- Standard trade model
- Economies of scale
- International trade and firms
- All things finance

Today

Trade policy: Protecting Indonesian textile manufacturers

Trade Minister: Used Clothes Cause HIV

Romeo Gacad/AFP/Getty

Today

- Logic of trade policy
- Tariffs
- Other policy instruments
- Some examples

Logic of trade policy

- A way for large countries to manipulate the Terms of Trade
  - Manipulate price of exports relative to imports
  - Increase national income at expense of of trading partners
- Protecting infant industries
  - No economy of scale
- Protectionism as a second-best
  - Cope with market imperfections
  - Provide time and resources for firms to undertake cost-reducing investments
  - Compensating globalisation losers, labour allocation away from declining industries.

Logic of trade policy

- Political economy arguments (more about this next lecture)
  - Special interest groups (1721 Wool act in the UK)
  - Distortion created by voting (over-representation of rural areas)
- Fiscal role of tariffs
  - Important source of income
  - American budget depended on tariffs until introduction of income tax in 1913
  - Developing countries lack certain fiscal capabilities and need tariffs to augment their budget

Logic of trade policy

Analysing the effects: General and partial equilibrium

- First part of course predominantly general equilibrium
  - Start with market structure, factor endowments, or available technology
  - All prices determined in equilibrium
  - Equilibrium conditions like trade balance, marginal cost, etc.
  - Income effects, substitution effects
- Trade policy analysis is partial equilibrium
  - Only concerned with single good and/or price
  - Strong assumptions: Neither incomes nor other price changes
  - Welfare only affected by consumption/sale of the single good

Tariffs

- Tax levied on imported goods
- Two types of tariffs
  1. **Ad valorem tariff**: based on value of imported goods (e.g. 10% of wheat imports)

$$P = P^*(1 + \tau)$$

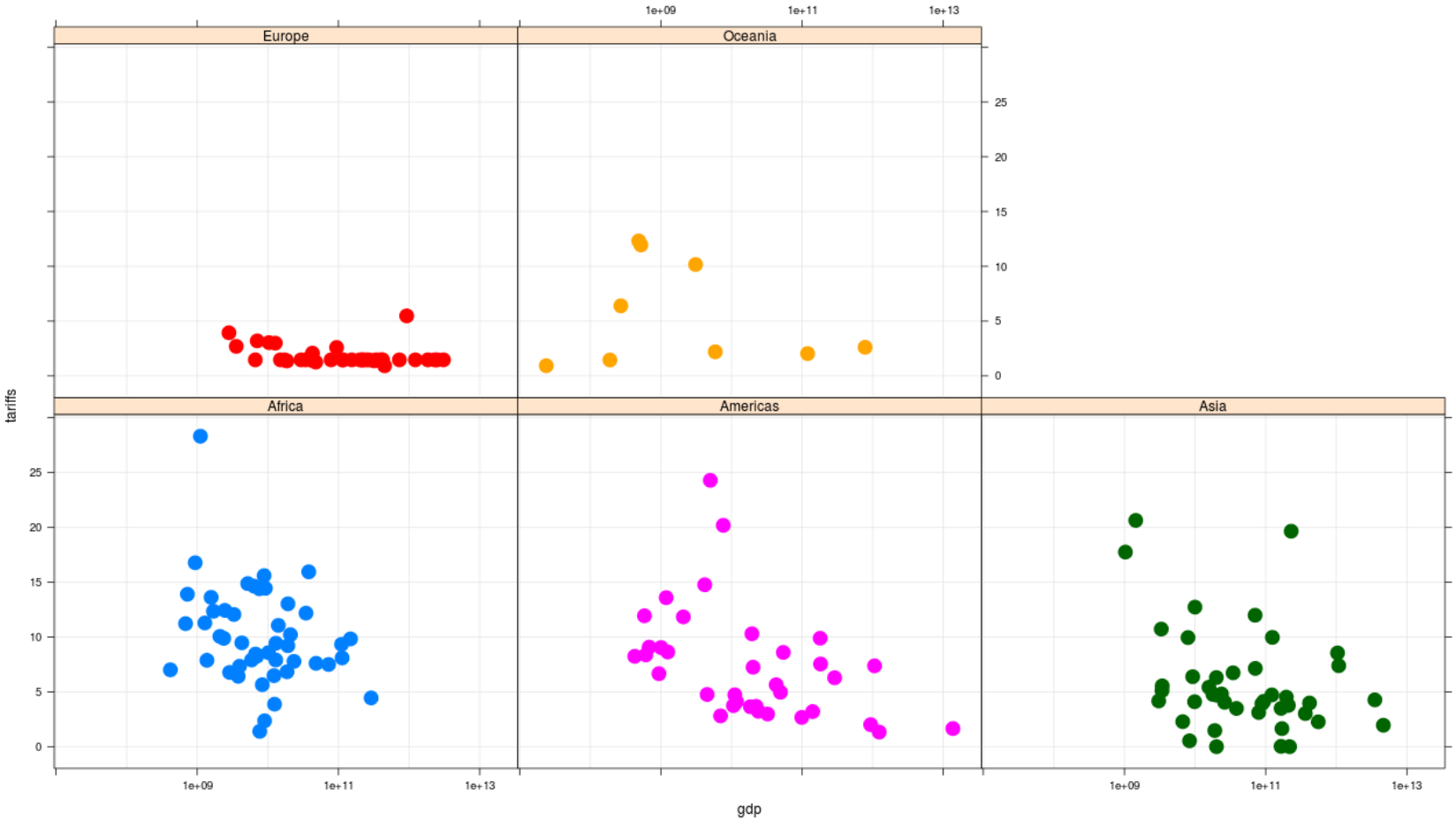
  2. **Specific tariff**: fixed charge for each unit of imported good (e.g. 5$ per barrel of oil)

$$P = P^* + \tau$$

- Most tariffs are *ad valorem* tariffs
- Analysis will focus on specific tariffs

Tariffs

Average tariff rate by countries per continent 2007-2013 (*Source: WDI*)



Tariffs

Example

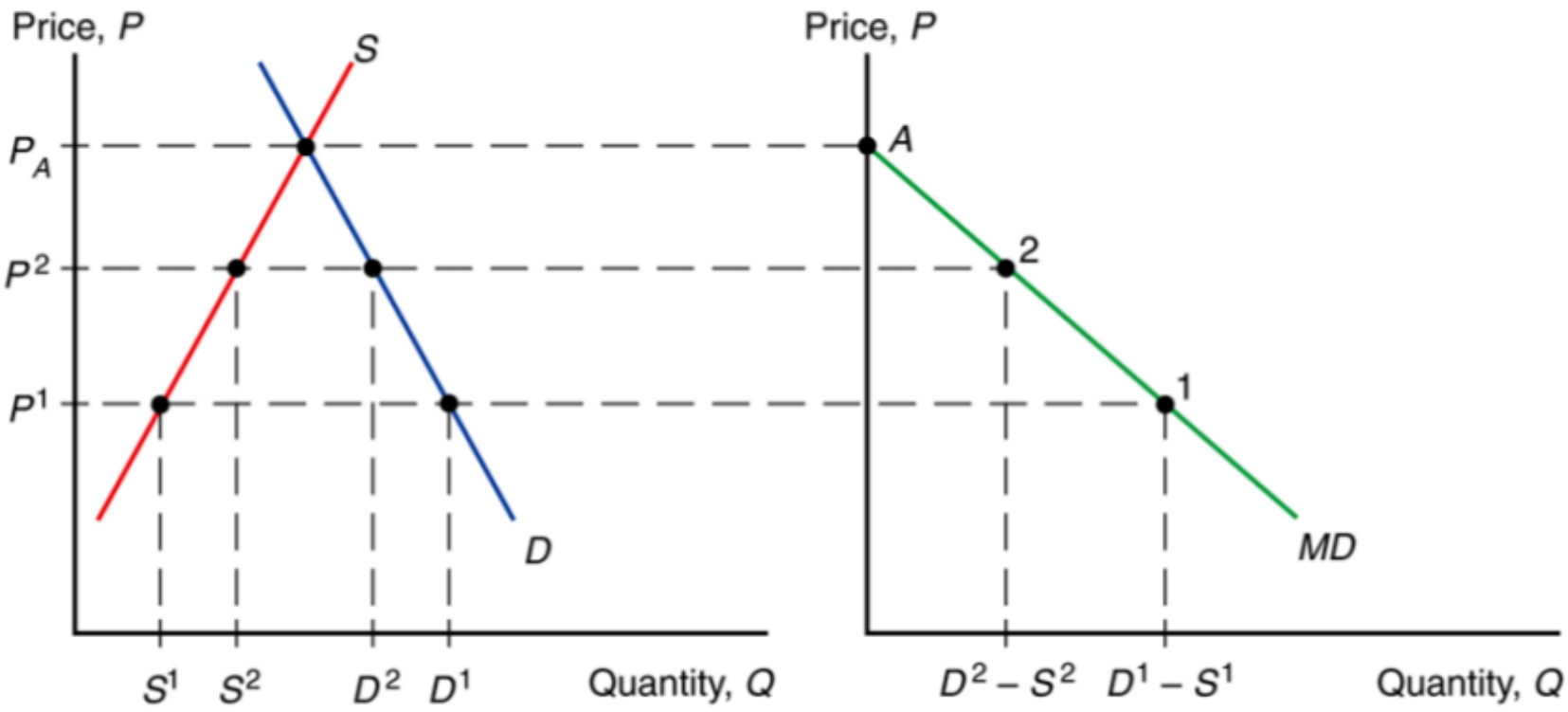
- Consider effect of tariff in a single market: Apples
- Absence of trade: $P_{Home} > P_{Foreign}$
- With trade: Apples shipped from Foreign to Home until $P_{Home} = P_{Foreign}$
- Home import demand given by: $MD = D - S$
- Foreign export supply is given by: $XS^* = S^* - D^*$

Tariffs

- Import demand curve y-axis: Difference between the quantity that domestic consumers demand and the quantity domestic producers supply
- Export supply curve y-axis: Difference between the quantity that foreign producers supply and the quantity foreign supply

Tariffs

Home import demand curve



Tariffs

Foreign export supply curve

Tariffs

World market equilibrium

- In equilibrium: import demand = export supply
- domestic demand - domestic supply = foreign supply - foreign demand

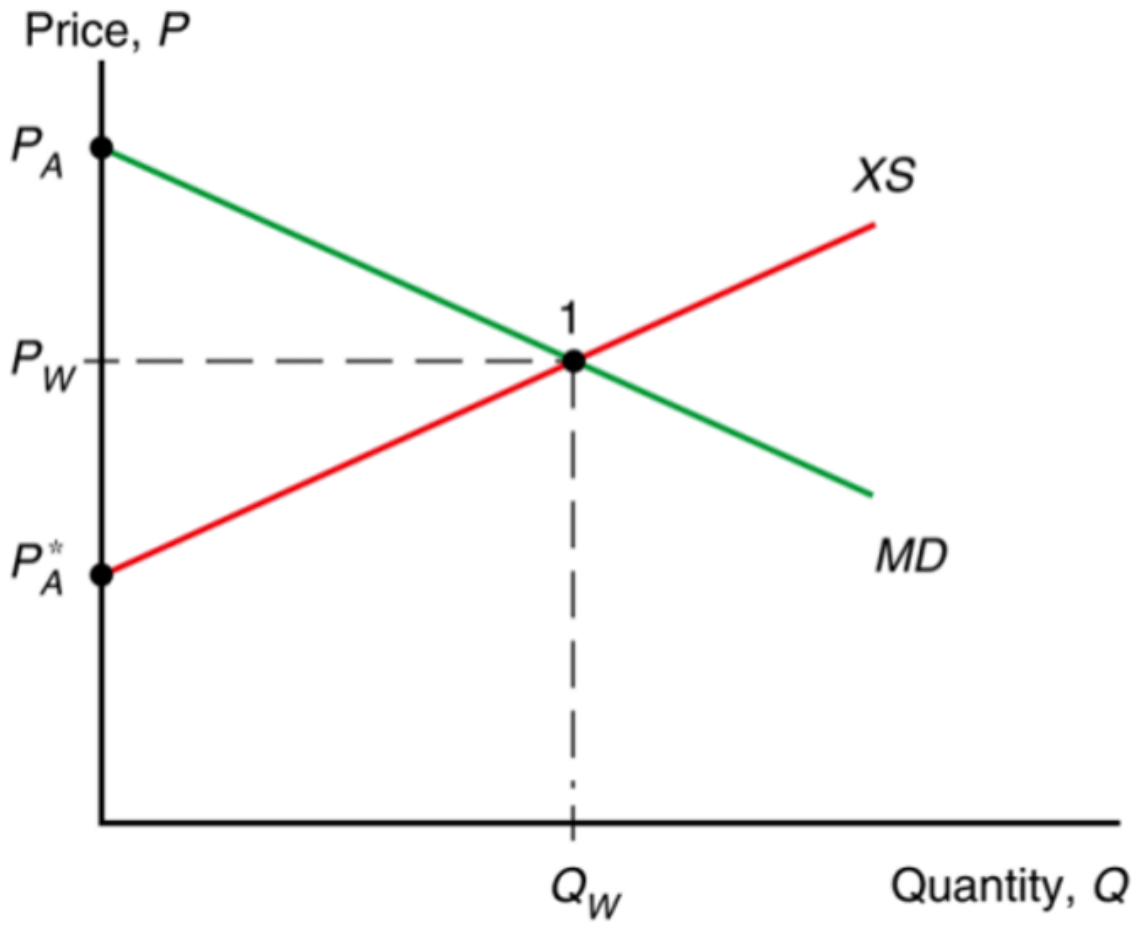
$$D - S = S^* - D^*$$

- world demand = world supply

$$D + D^* = S + S^*$$

Tariffs

World equilibrium



Tariffs

Effect of tariff

- Producer only sells abroad if $P_{Foreign} > P_{Home} + \tau$
- Producer only sells domestically if $P_{Foreign} < P_{Home} + \tau$
- Equilibrium price difference is the tariff:

$$P_T - P_T^* = \tau$$

- Tariff acts like a transportation cost

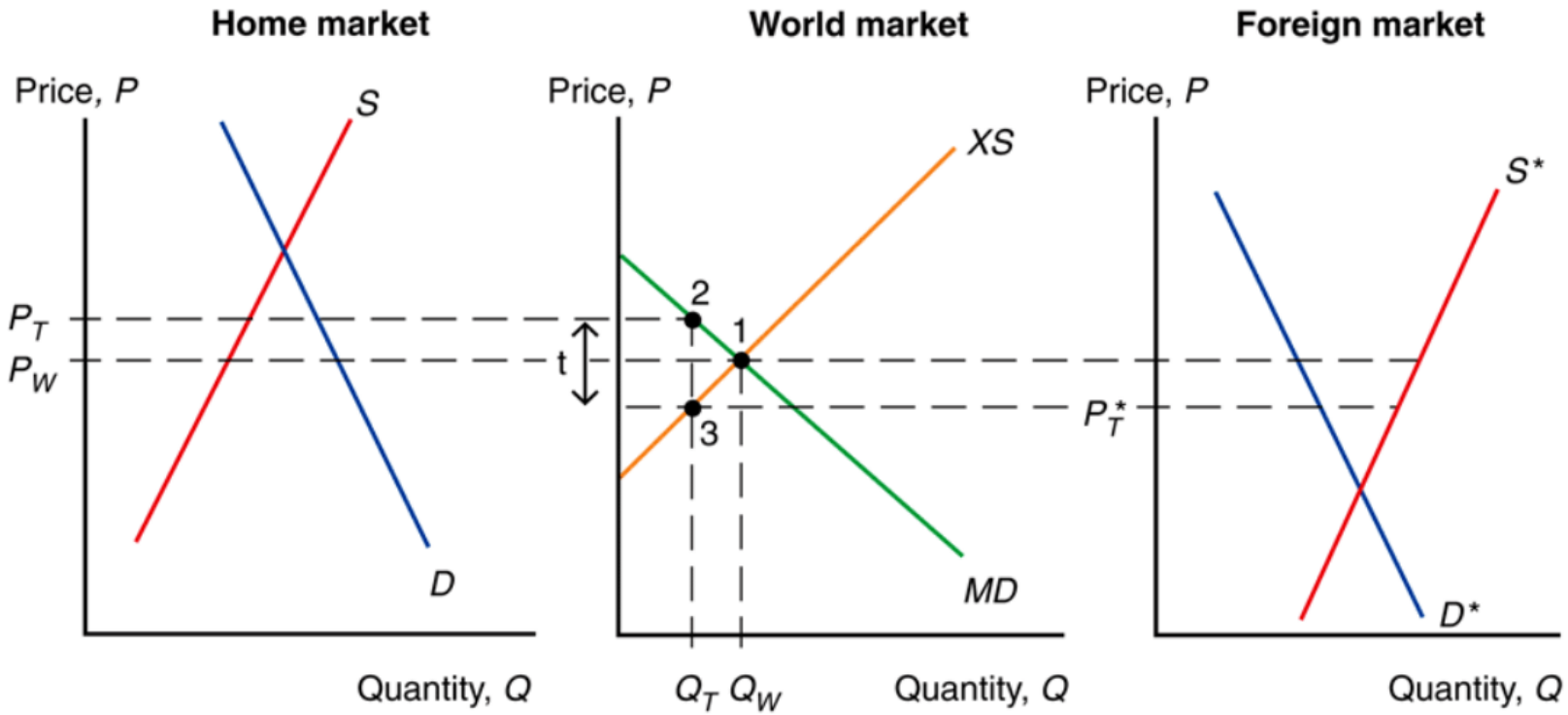
Tariffs

Effect of tariff

- After tariff is set, there is excess demand in Home and excess supply in Foreign
- Price will increase in Home, and decrease in Foreign
- Home imports and Foreign exports will decrease

Trade policy instruments

Effect of tariff



Tariffs

Effects of tariff

- Home, price rises from P_W to P_T
  - Home producers supply more
  - Home consumers demand less
  - Import quantity falls from Q_W to Q_T (2)
- Foreign, price drops from P_W to P_T^*
  - Foreign producers supply less
  - Foreign consumers demand more
  - Export quantity falls from Q_W to Q_T (3)
- Home imports quantity demanded = Foreign exports quantity supplied when: $P_T - P_T^* = t$
  - Increase in Home price can be less than tariff
  - Part of tariff effect causes Foreign export price to decline (very small)

Tariffs

Tariff effect in small country

- If Home is small country, it has no effect on foreign (world) price
- Its demand is insignificant part of world demand for the good
- Foreign price will remain at P_W
- Price in home market will rise by full amount of tariff: $P_T = P_W + \tau$

Tariffs

Tariff effect in small country

Tariffs

Effective rate of protection

- Measures how much protection a trade policy provides
- Effective rates of protection often differ from tariff rates
  - Tariffs affect sectors other than the protected sector
  - Causes indirect effects on the prices and value added for the protected sector

Tariffs

Effective rate of protection

- Suppose bicycles are sold for £800 at world market prices
- Bicycle inputs cost £600
- Value added in production is £200

- Country adds a 25% tariff on imported bicycles
- Home producers can now charge £1,000 instead of £800

Tariffs

Effective rate of protection

- Effect rate of protection for home bicycle producers is the change in value added

$$\frac{400 - 200}{200} = 100$$

- Effective rate of protection is greater than tariff rate

Tariffs

Effective rate of protection

- Country imposes tariffs on bicycle parts
- Policy is implemented in order to encourage domestic production
- Tariff of 10% raises inputs costs from £600 to £660
- No change in tariff on end product
- This policy is less advantageous to bicycle assembly

Tariffs

Effective rate of protection

- Before parts-tariff local assembly is worth £200
- After parts-tariff local assembly is worth £140
- The tariffs on parts provides protection for parts manufactures
- But negative protection to assembly of -30% $(\frac{-60}{200})$

Trade policy instruments

Costs and benefits of tariffs

- Tariff will raise price of good at Home
- Home consumers will lose due to increased price
- Home producers will win due to higher price
- Home government gets revenue due to tariff

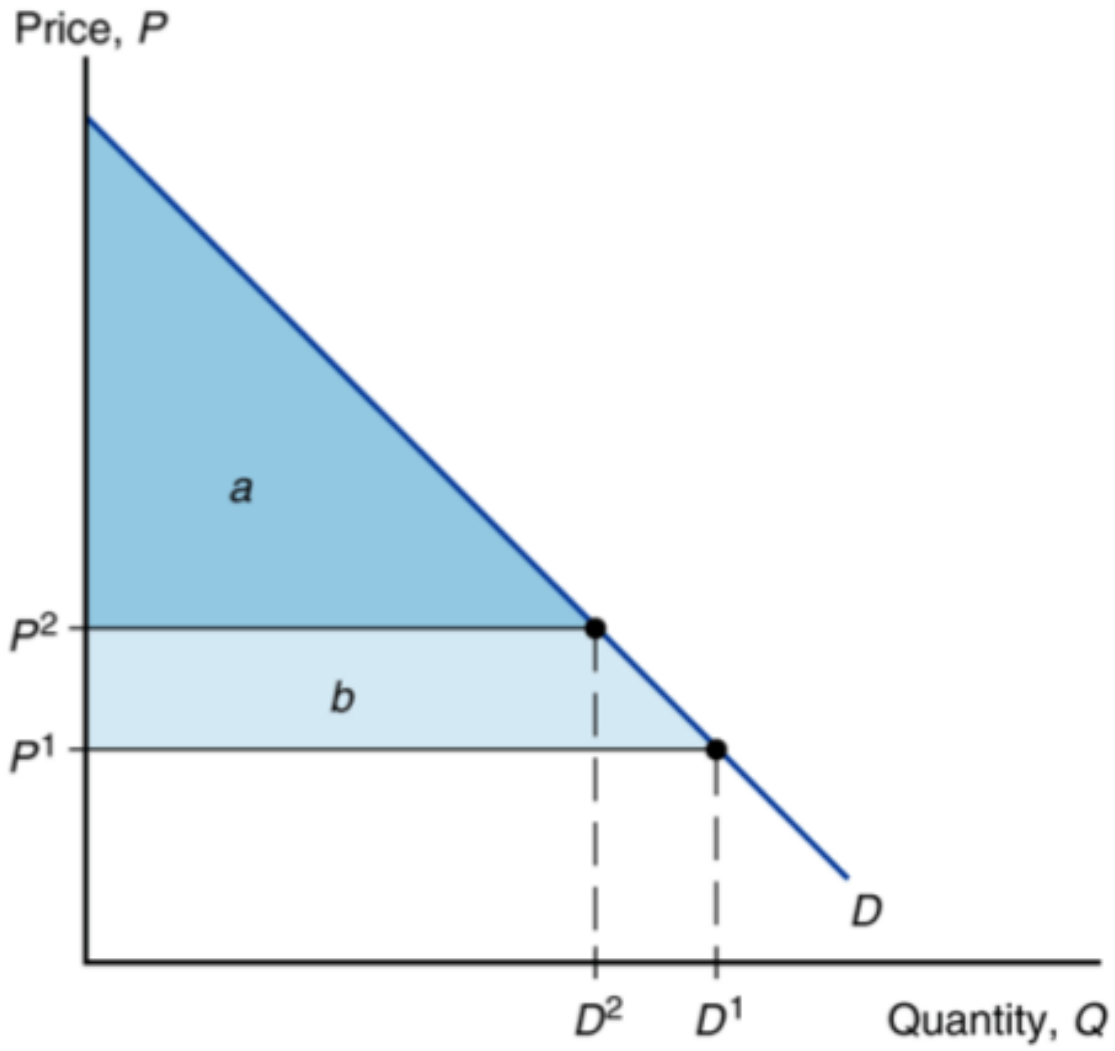
Tariffs

Effect on welfare

- Consumer surplus
  - Difference between actual price and maximum price willing to pay
- Producer surplus
  - Difference between actual selling price and the minimum price willing to sell

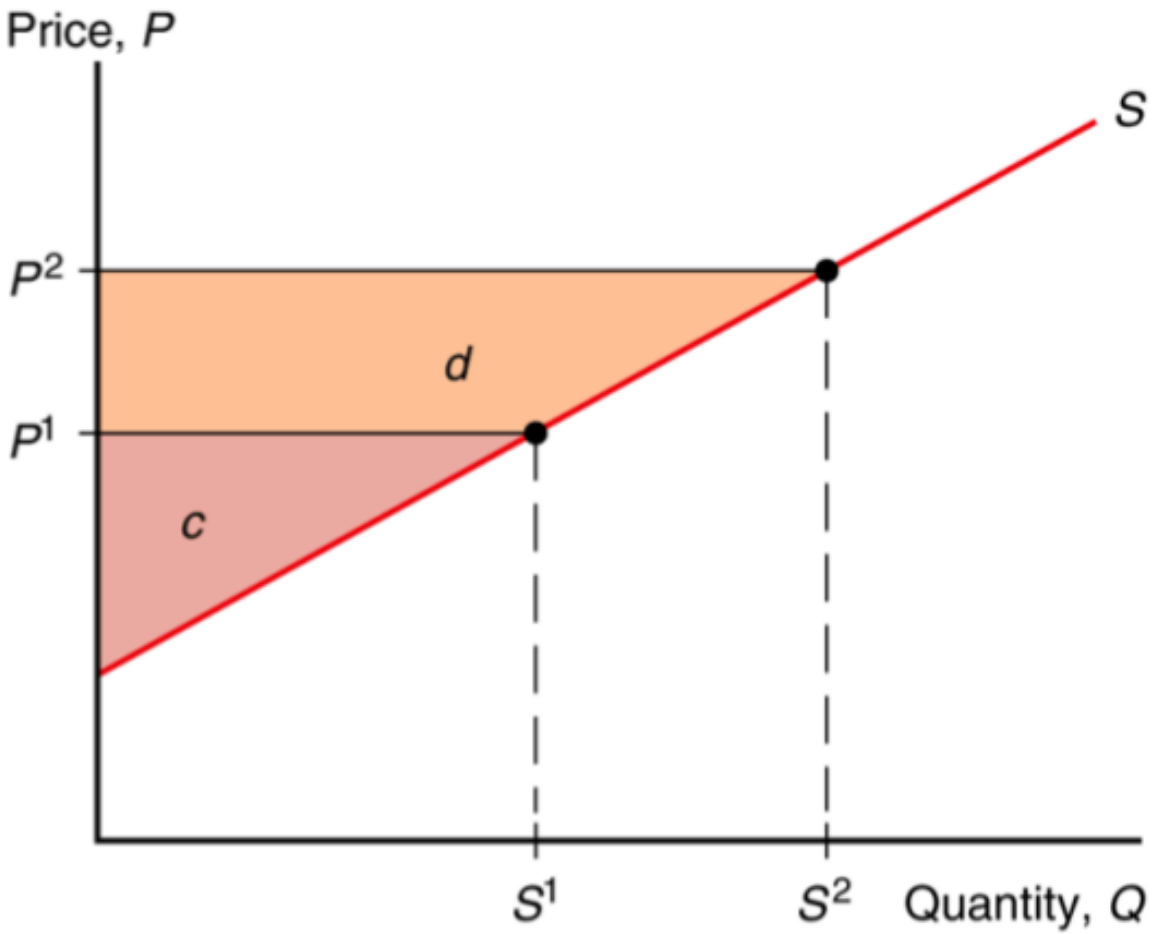
Tariffs

Consumer surplus



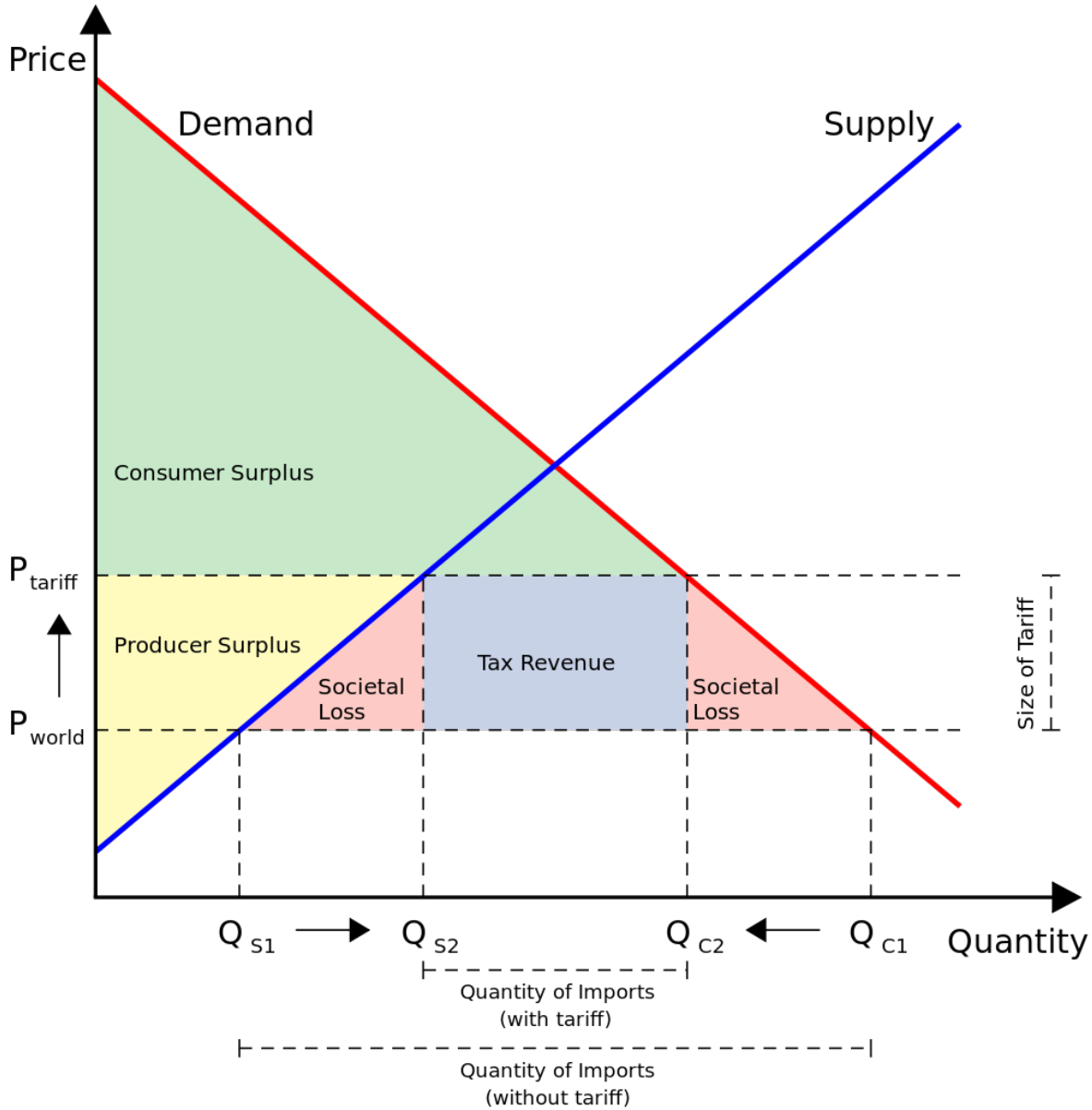
Tariffs

Producer surplus



Tariffs

Costs and benefits for importing country



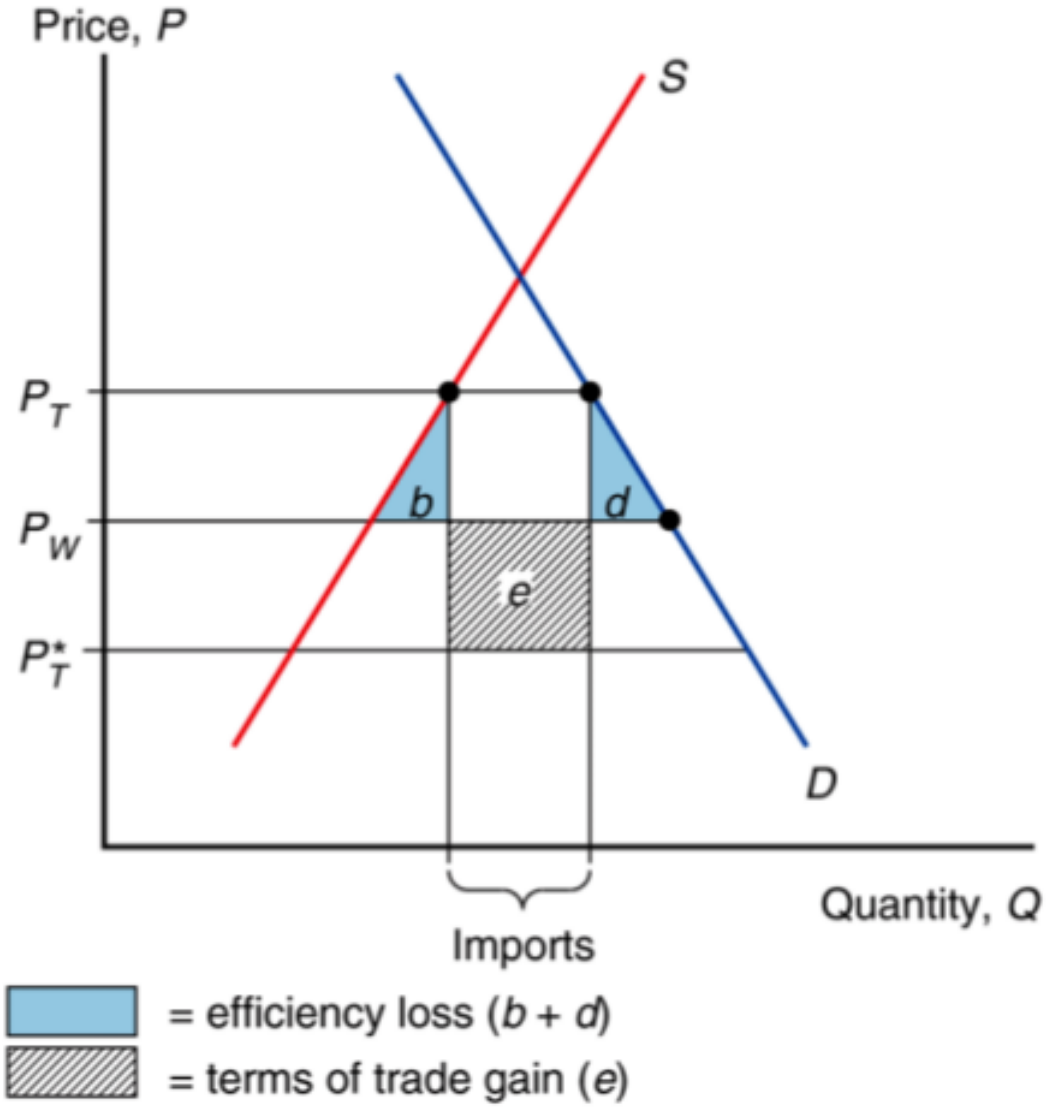
Tariffs

Costs and benefits for importing country

- Consumers lose surplus between trade and tariff price
- Producers gain surplus between trade and tariff price
- Government gets revenue from tariff $Q\tau$

Tariffs

Welfare effects



Trade policy instruments

Other policy instruments

- Tariffs have costs and benefits
- There are other policy tools
  - Export subsidies
  - Import quotas
  - Voluntary export restraints
- These are all worse options: no tariff government rents

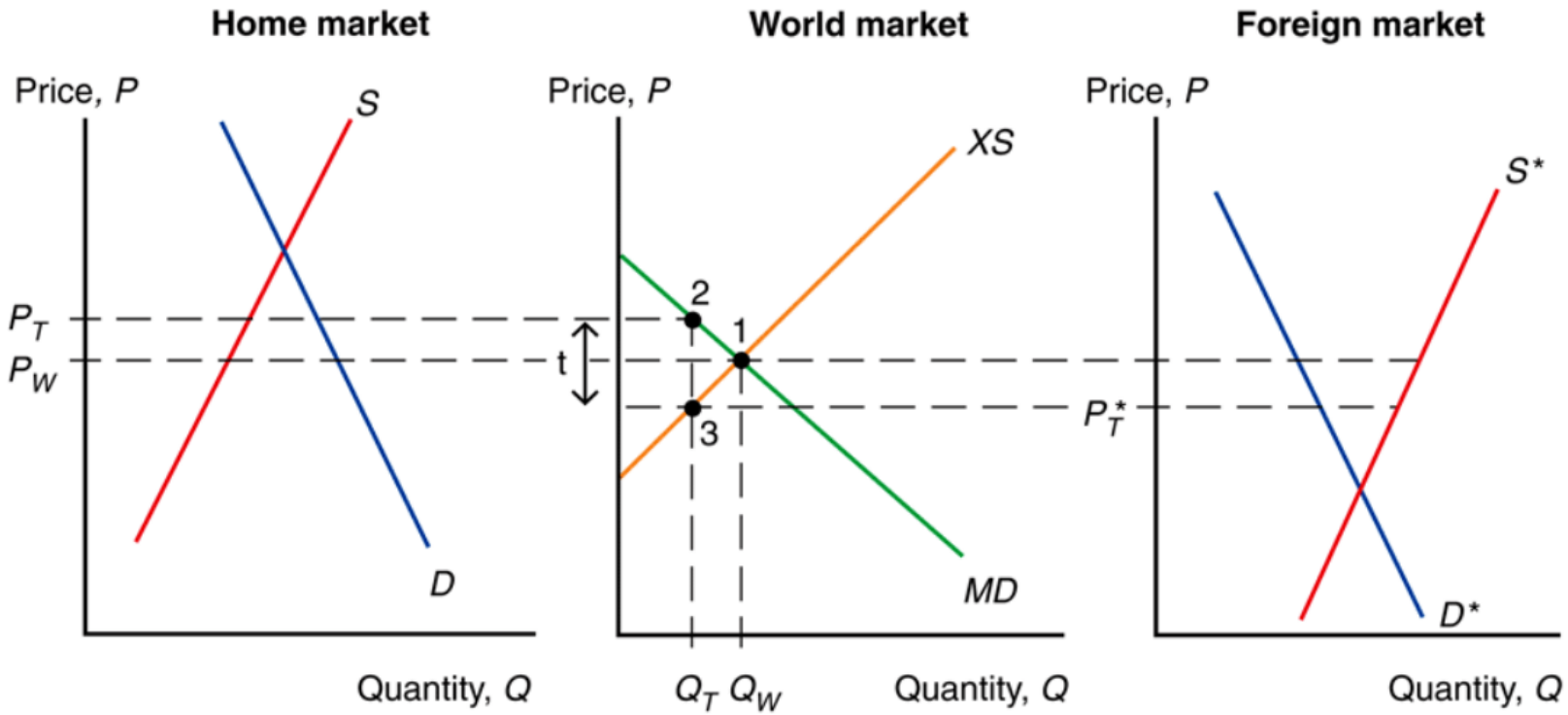
Trade policy instruments

Export subsidies

- Can be specific or ad valorem
- Exact opposite of tariffs
- Government pays country to export

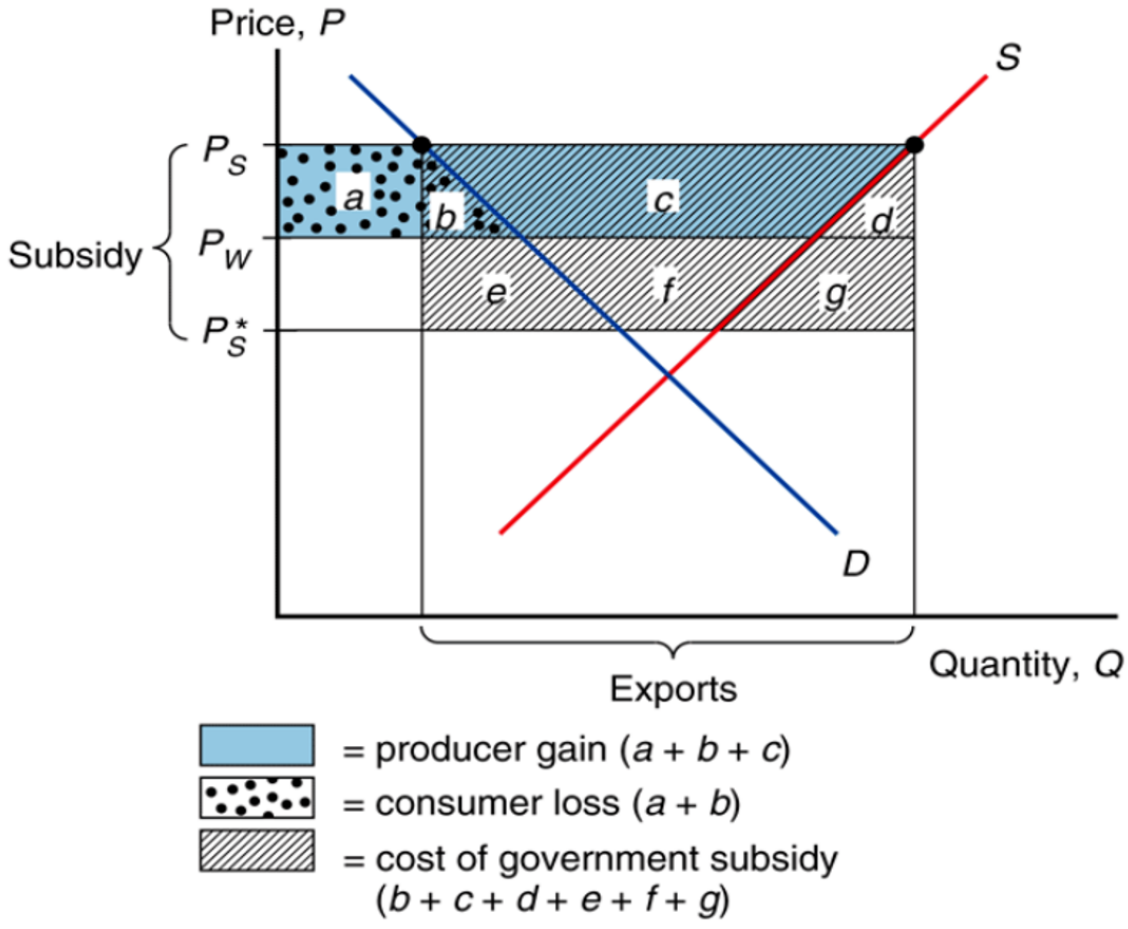
Trade policy instruments

Tariffs and prices



Trade policy instruments

Export subsidy effect



Trade policy instruments

Export subsidies

- Export subsidy will raise price in exporting country
  - Decreases consumer surplus
  - Increases producer surplus
- Government revenues fall
  - Due to paying sX^*
- Lowers price paid in importing countries: $P^* = P_s - s$
- In contrast with tariff, export subsidy will worsen ToT by lowering world market export prices

Trade policy instruments

Import quotas

- Restriction on quantity of good that may be imported
- Enforced by licenses or quota rights
- A binding import quota will push up the price of the import because the quantity demanded will exceed the quantity supplied by Home producers and from imports.
- Quota rents go to license holder

Trade policy instruments

Voluntary export restraint

- Similar to import quota only imposed by exporting country
- Restraints usually requested by importing country
- Profits/rents go to foreign government/producer
- Foreigner sells restricted quantity at higher price
- 1980s US used this to restrict Japanese car imports

Trade policy instruments

Summary of effects

- For each trade policy P_{Home} will increase
  - Home producers supply more and gain
  - Home consumers demand less and lose
- P_{World} falls if Home is large
- Effect on government
  - Tariffs generate revenue
  - Subsidies drain it
  - Import quotas have no effect
- Trade policies create production and consumption distortions

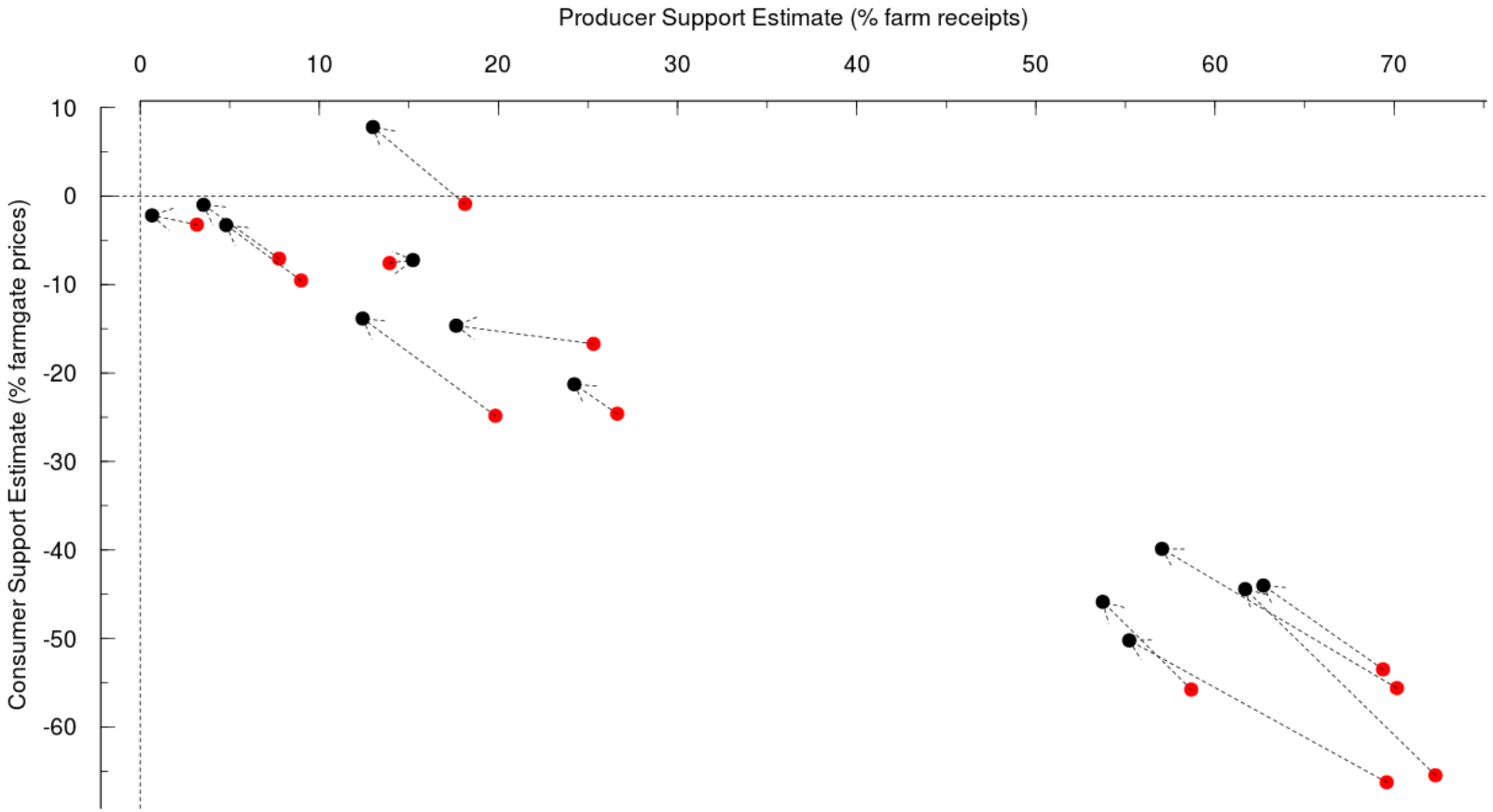
Trade policy instruments

Summary of effects

	Tariffs	Export subsidy	Import quota	Voluntary export restraint
Producer surplus	Increases	Increases	Increases	Increases
Consumer surplus	Decreases	Decreases	Decreases	Decreases
Government revenue	Increases	Decreases	Unchanged	Unchanged
Overall national welfare	Ambiguous	Decreases	Ambiguous	Decreases

Examples

Agricultural support for producers and consumers (*Source: OECD*)



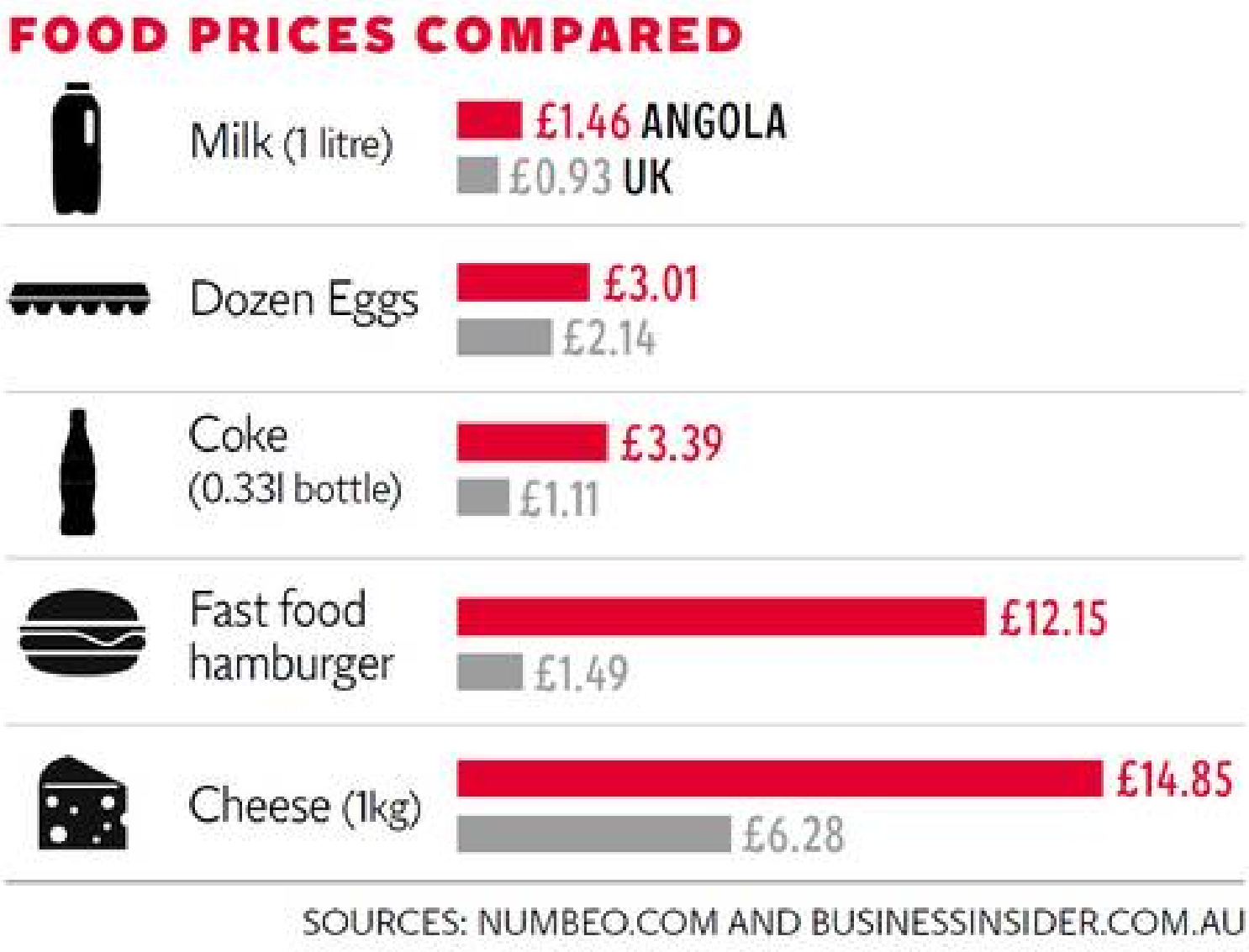
Examples

Tariffs in Angola

- Angola is Africa's second largest oil exporter
- Luanda is one of the most expensive cities in the world
- Government imposed tariffs in 2014 in bid to diversify economy
- Large increases in local food prices
- Import tariffs have offset decrease in inflation

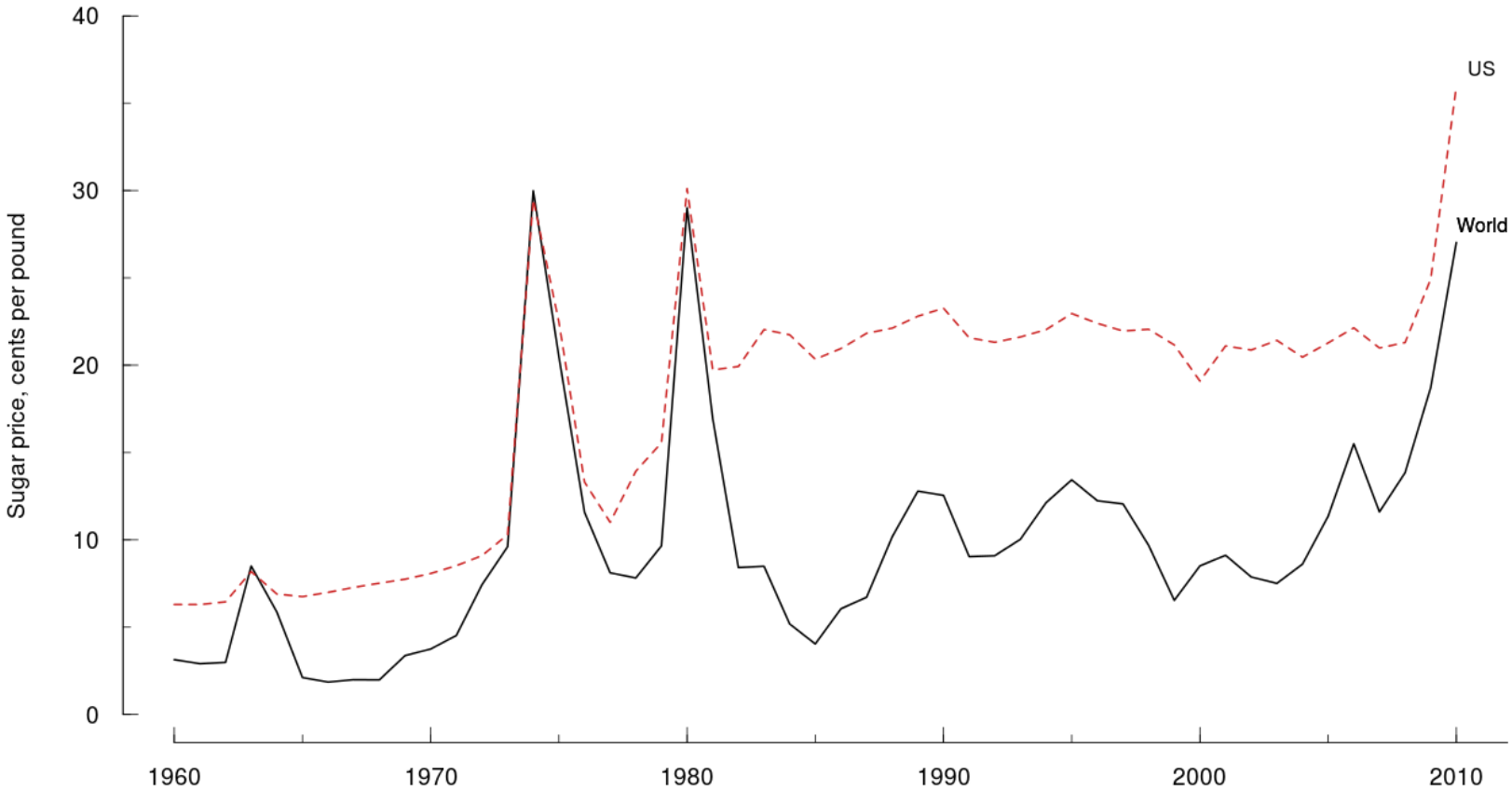
Examples

Tariffs in Angola



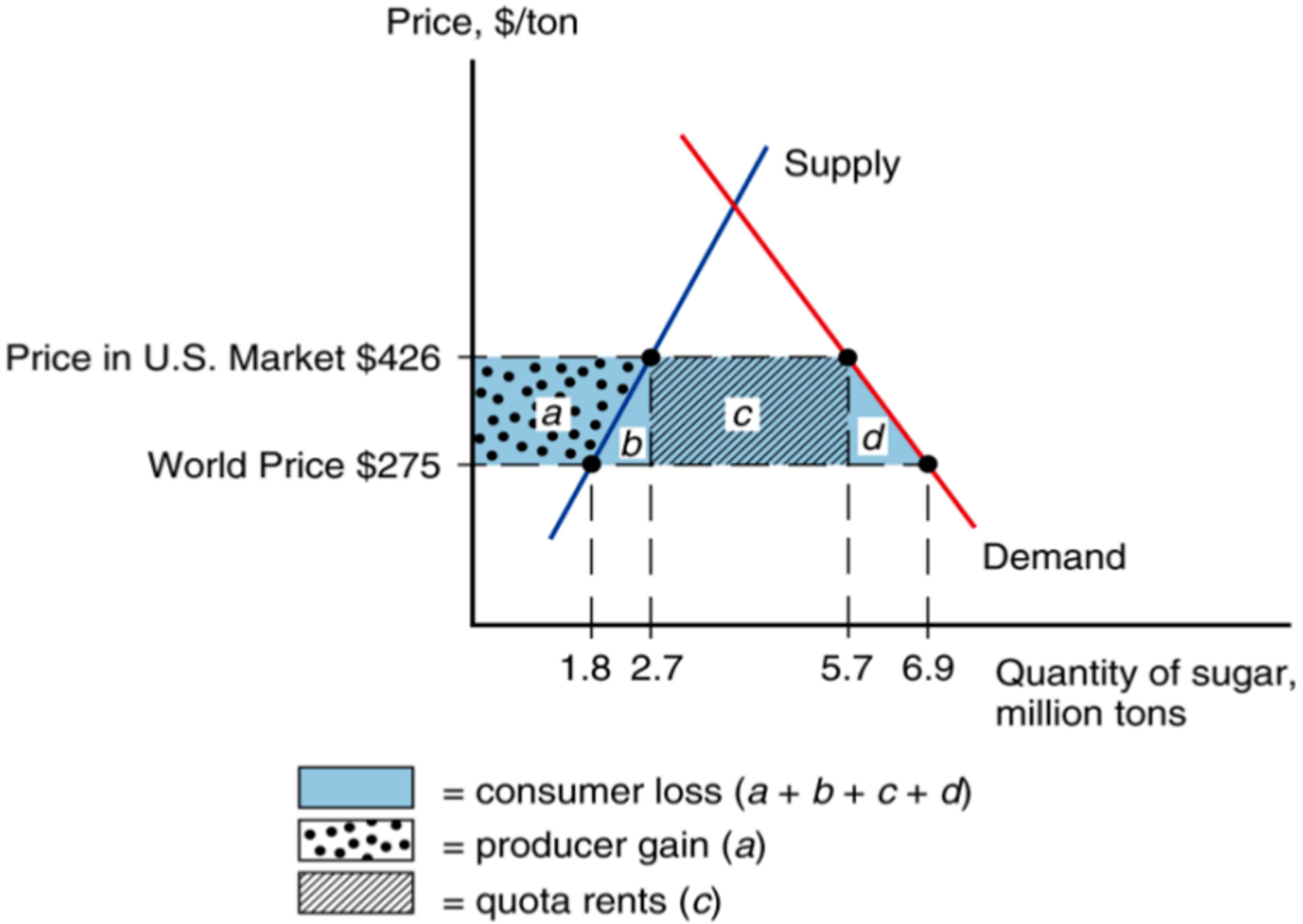
Examples

World versus US raw sugar prices



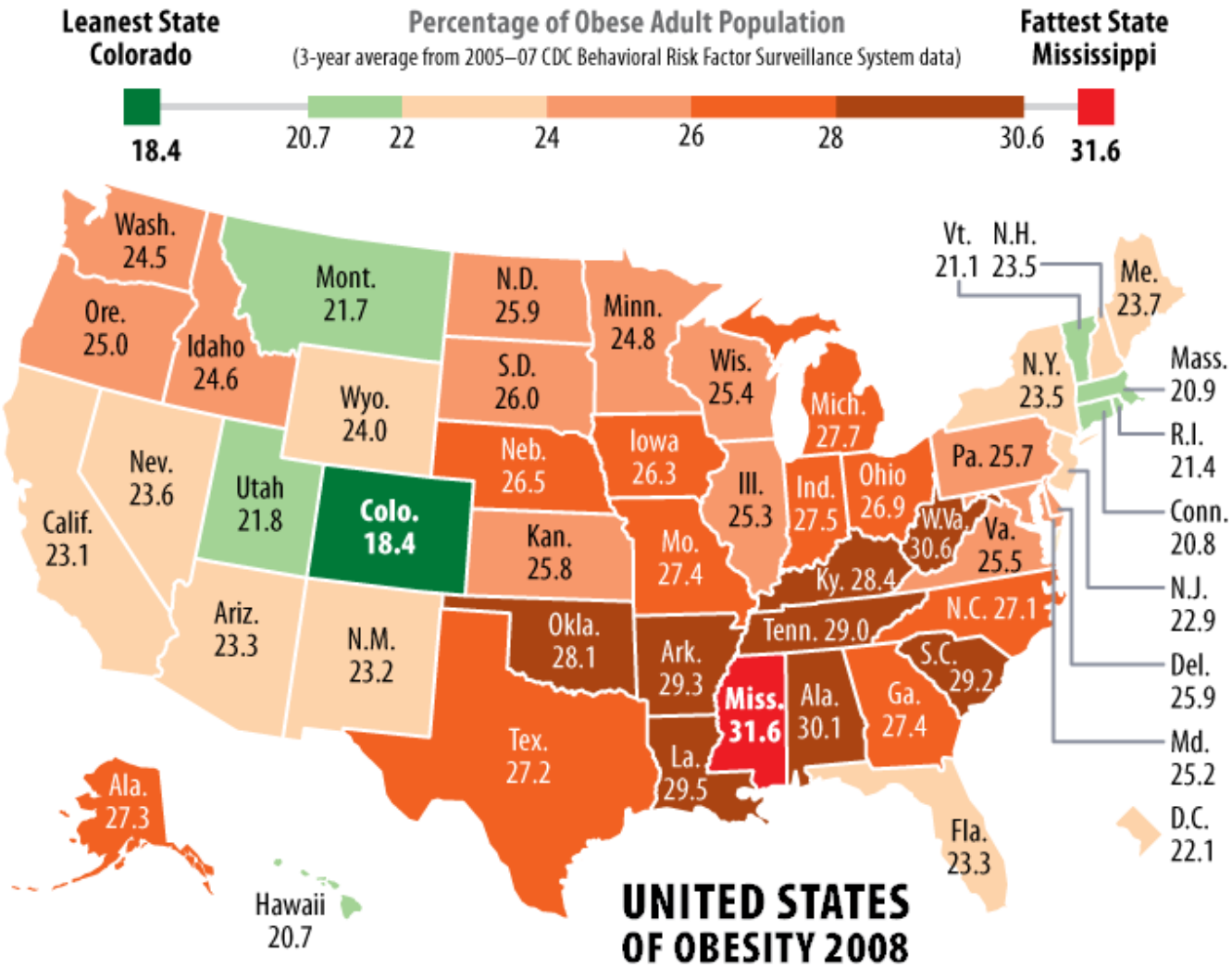
Examples

Effects of the US import quota on sugar



Examples

U.S. obesity prevalence by state



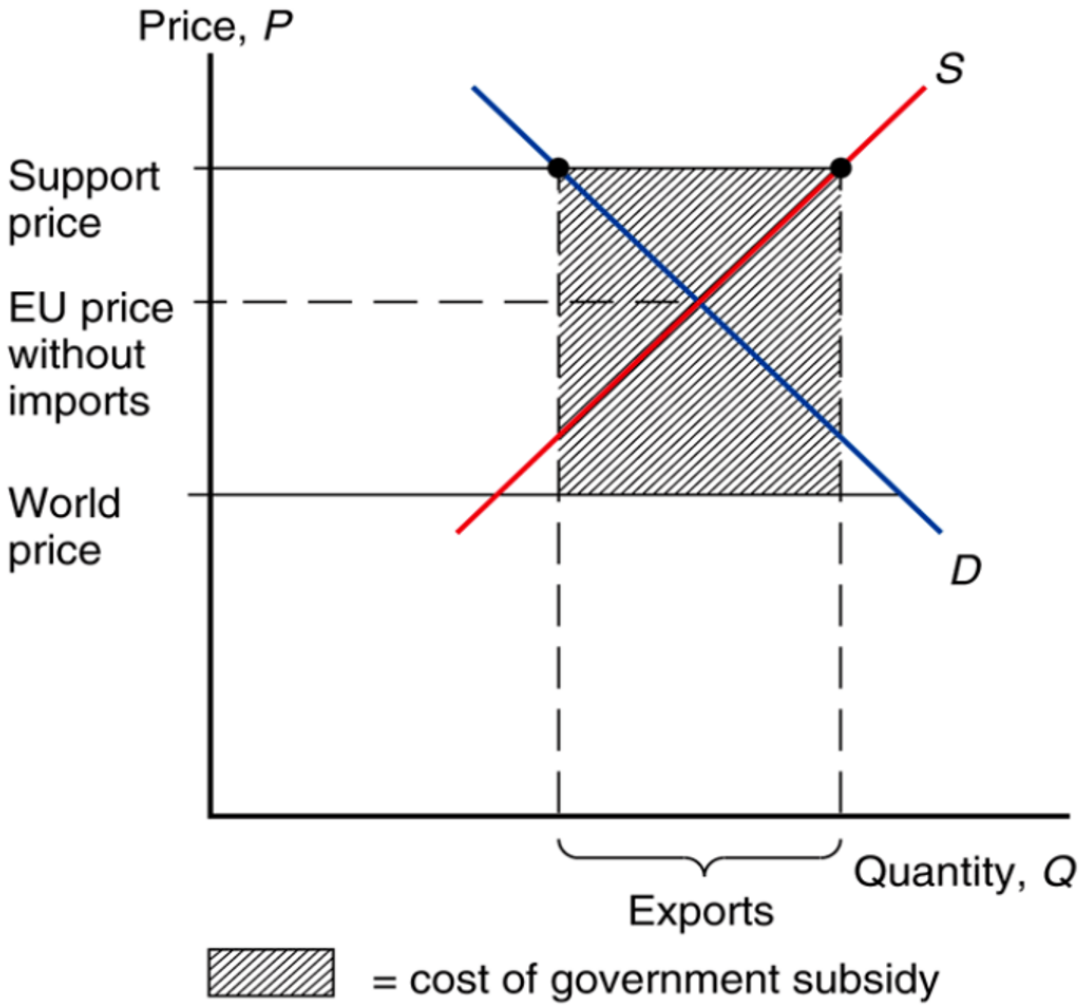
Examples

Export subsidy: Common Agricultural Policy

- System of agricultural subsidies in EU introduced in 1962
- Programme objective was to increase productivity and secure food supply at reasonable prices
- Turned EU from food importer to food exporter
- Accounts for 40% of EU budget
- Objectives are out of date
- Costs roughly $30 Billion more than its benefits (2007)

Examples

Effect of CAP on prices



Examples

Some of the UK's main beneficiaries of CAP