International Trade

L16

Measuring the amount of protection

- A tariff on an imported good raises the price received by domestic producers of that good.
- This effect is often the tariff's principal objective—to *protect* domestic producers from the low prices that would result from import competition.
- How much protectionism?
- Expressed usually in terms of percentage of the price that would prevail under free trade
- If the tariff is an ad valorem tax proportional to the value of the imports, the tariff rate itself should measure the amount of protection;
- if the tariff is specific, dividing the tariff by the price net of the tariff gives us the ad valorem equivalent.

Measuring the amount of protection

- If the tariff is specific, dividing the tariff by the price net of the tariff gives us the ad valorem equivalent.
- Two-problems in this method:
- A) If the small-country assumption is not a good approximation, part of the effect of a tariff will be to lower foreign export prices rather than to raise domestic prices. This effect of trade policies on foreign export prices is sometimes significant –not reflected in this method
- B) Tariffs may have very different effects on different stages of production of a good – **effective rate of protection** will be higher
- Trade policies aimed at promoting economic development, often lead to rates of effective protection much higher than the tariff rates themselves

Measuring the amount of protection

- Ex:Automobile sells on world market at Rs. 8 L and its parts sell for Rs. 6L
- Two countries – Country **A** wants **to develop an auto assembly industry** and country **B** already has an assembly industry and wants **to develop a parts industry**.
- To encourage a domestic auto industry, country A places a 25 percent tariff on imported autos, allowing domestic assemblers to charge Rs. 10L instead of Rs.8L
- Rate of protection ? 25%

  In this case, assemblers received more than 25 percent protection.
- Before the tariff, domestic assembly would take place only if it could be done for Rs 2L (the difference between the Rs 8L price of a completed automobile and the Rs 6L cost of parts) or less; now it will take place even if it costs as much as Rs 4L.(the difference between the Rs 10L price and the cost of parts).
- That is, the 25 percent tariff rate provides assemblers with an **effective rate of protection** of 100 percent.

Measuring the amount of protection

- Now suppose country B, to **encourage domestic production of parts**, imposes a 10 percent tariff on imported parts, raising the cost of parts of domestic assemblers from Rs.6L to Rs 6.6 L.
- Before the tariff, it would have been worth assembling a car locally if it could be done for Rs.2L (8L-6L);
- After the tariff, local assembly takes place only if it can be done for Rs. 1.4 L (8L-6.6L).
- The tariff on parts, then, while providing positive protection to parts manufacturers, provides **negative effective protection** to assembly at the rate of -30 percent (0.6L/2L).
- Even though there is **no change in the tariff on assembled automobiles**, this policy makes it **less advantageous to assemble domestically**.

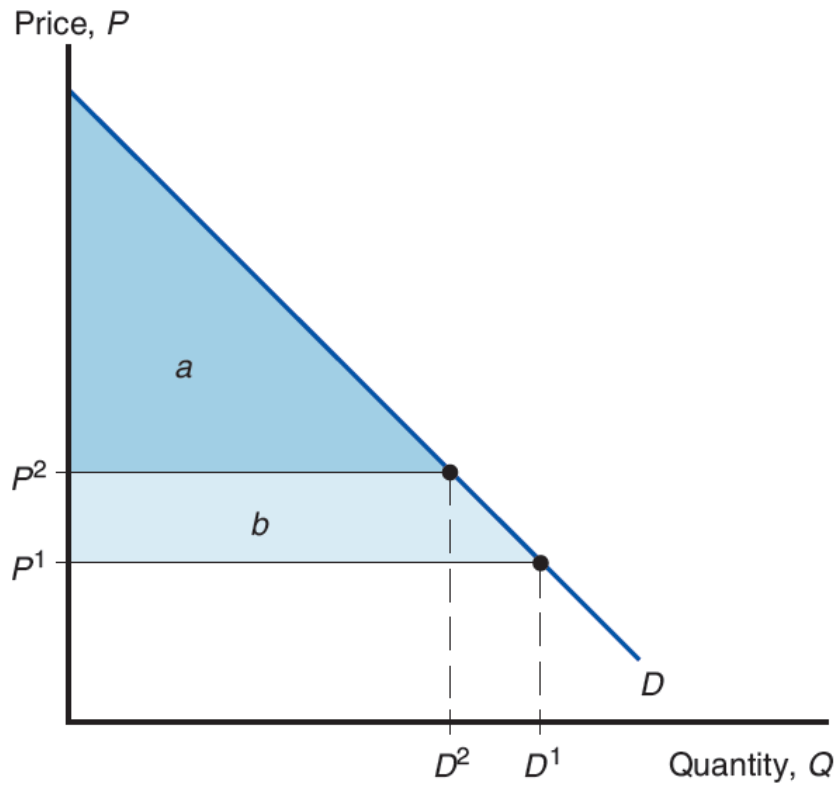
Measuring the amount of protection: Effective protection

Tariffs: Cost and Benefits

- Tariff raises the price of good in the importing country and lowers it in the exporting country
- As a result of these price changes, consumers lose in the importing country and gain in the exporting country.
- Producers gain in the importing country and lose in the exporting country.
- In addition, the government imposing the tariff gains revenue.
- Quantifying cost and benefit –consumer surplus (CS) and producer surplus (PS)
- CS+PS= Social gain

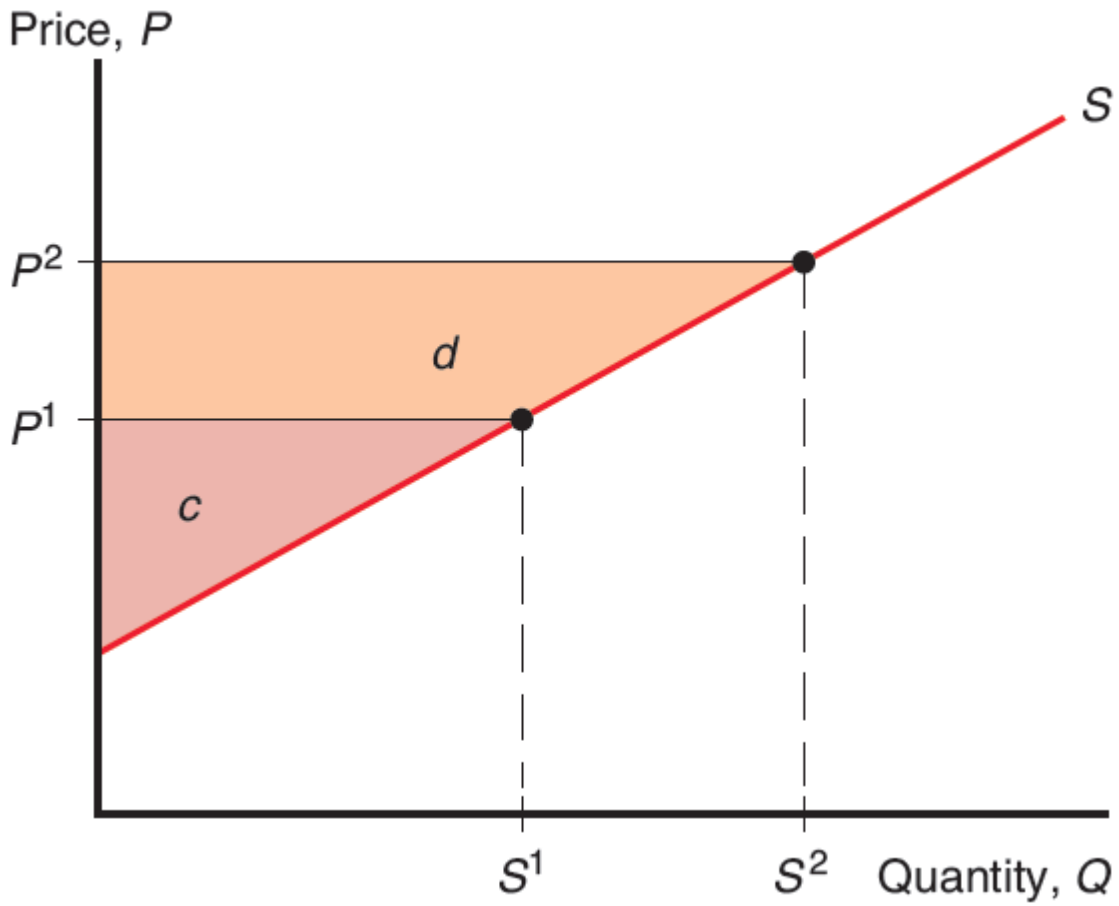
Consumer Surplus

- **Consumer surplus** measures the amount a consumer gains from a purchase by computing the **difference** between the price he **actually pays** and the price he would have been **willing to pay.**
- If *P* is the price of a good and *Q* the quantity demanded at that price, then consumer surplus is calculated by subtracting *P* times *Q* from the area under the demand curve up to *Q*.
- If the price is *P*1, the quantity demanded is *D*1 and the consumer surplus is measured by the areas labeled *a* plus *b*.
- If the price rises to *P*2, the quantity demanded falls to *D*2 and consumer surplus falls by *b* to equal just *a*.



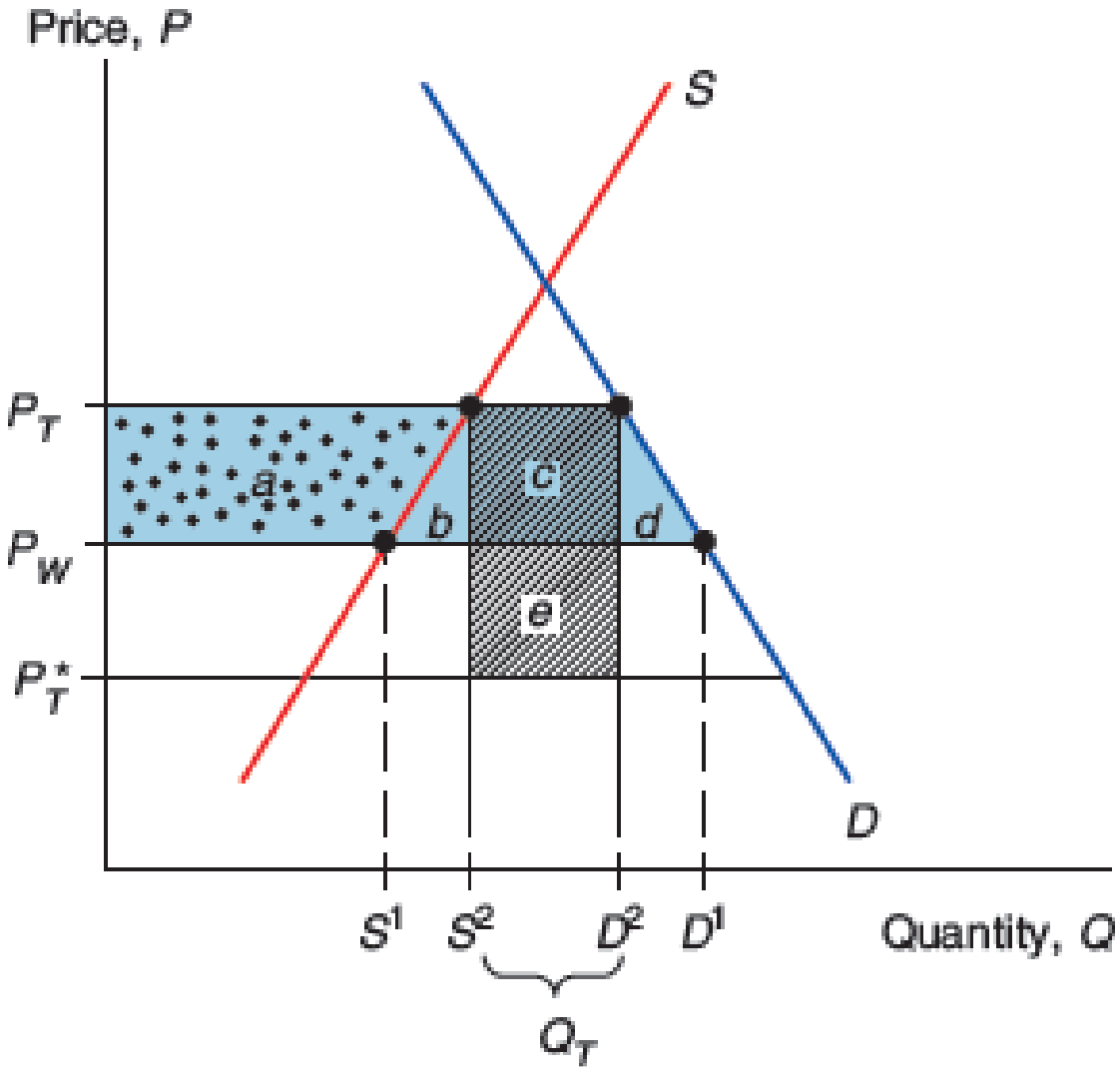
Producers Surplus

- If *P* is the price and *Q* the quantity supplied at that price, then producer surplus is *P* times *Q* minus the area under the supply curve up to *Q*.
- If the price is *P*1, the quantity supplied will be *S*1, and producer surplus is measured by area *c*.
- If the price rises to *P*2, the quantity supplied rises to *S*2, and producer surplus rises to equal *c* plus the additional area *d*



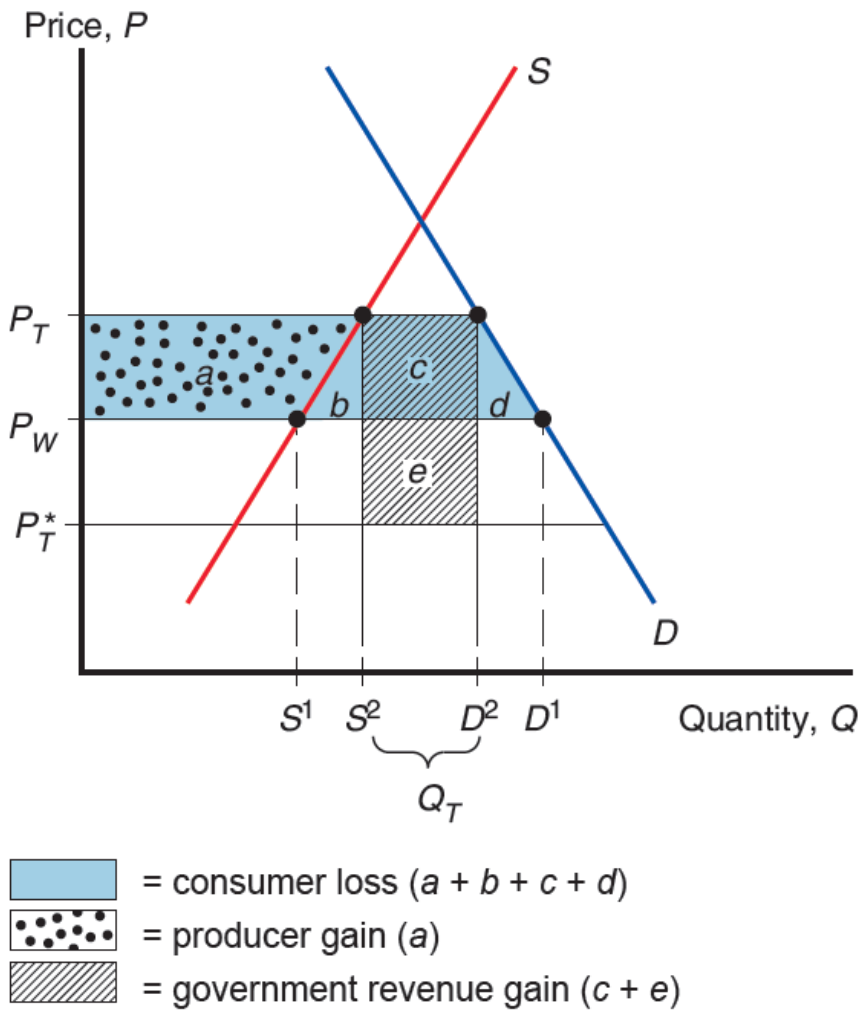
Cost and Benefit of Tariff for the importing country

- Tariff raises the domestic prices from P_w to P_T .
- Lowers the foreign export price from P_w to P_T *.
- Domestic production rises from *S*1 to *S*2 while domestic consumption falls from *D*1 to *D*2



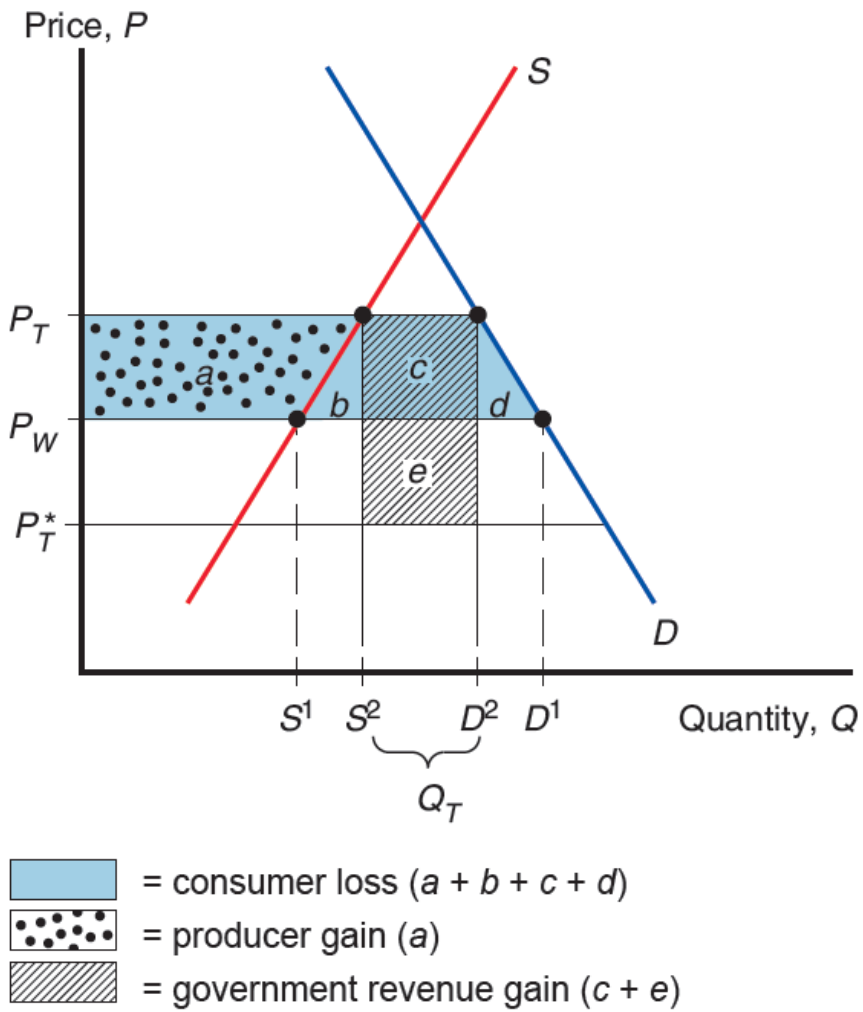
Cost and Benefit of Tariff

- The costs and benefits to different groups can be expressed as sums of the areas of five regions, labeled *a*, *b*, *c*, *d*, *e*.
- Domestic producers- receive higher price (P_w to P_T) and therefore have higher producers surplus. After tariff , producer surplus gain= area *a*
- Domestic consumers also face higher price (P_w to P_T) – make them worse off. Consumer surplus loss =area $a+b+c+d$.



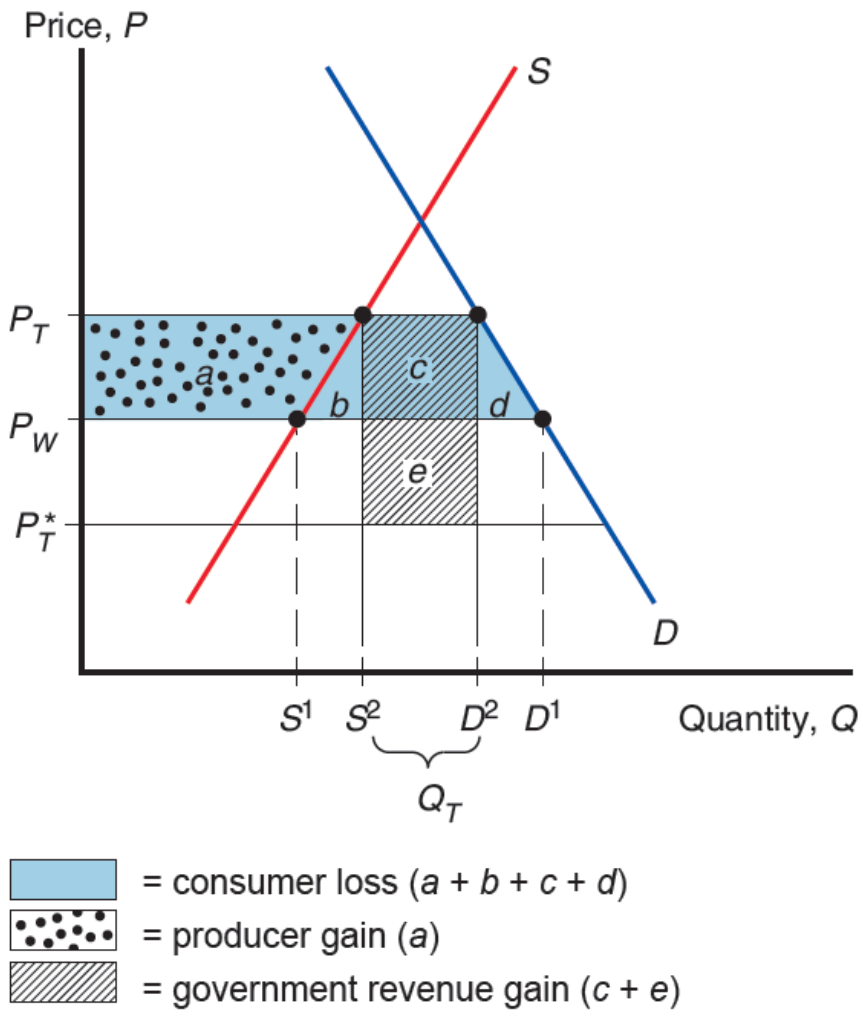
Cost and Benefit of Tariff for the importing country

- *Government:* Gain by collecting revenue=Tariff rate (t) * volume of imports
- Tariff rate= t= P_T - P_T *
- Volume of imports=Q_T =D^2-S^2
- Gain=c+e



Cost and Benefit : Concerns

- Since these gains and losses accrue to different people, the overall cost-benefit evaluation of a tariff depends on how much we value a dollar's worth of **benefit to each group.**
- If, for example, the producer gain accrues mostly to wealthy owners of resources, while consumers are poorer than average?
- Similarly, the tariff will be viewed differently if the good is a luxury bought by the affluent but produced by low-wage workers.
- Further ambiguity is introduced by the role of the government: Will it use its revenue to finance vitally needed public services or waste that revenue on less priority goods/services



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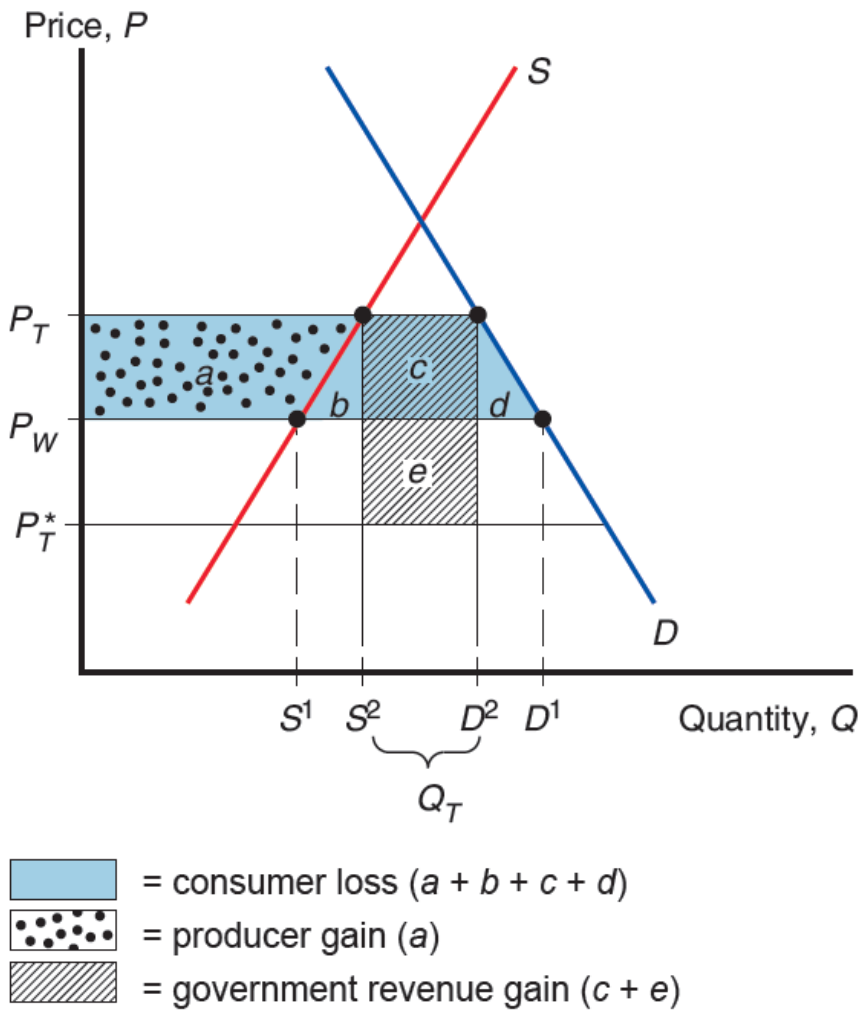
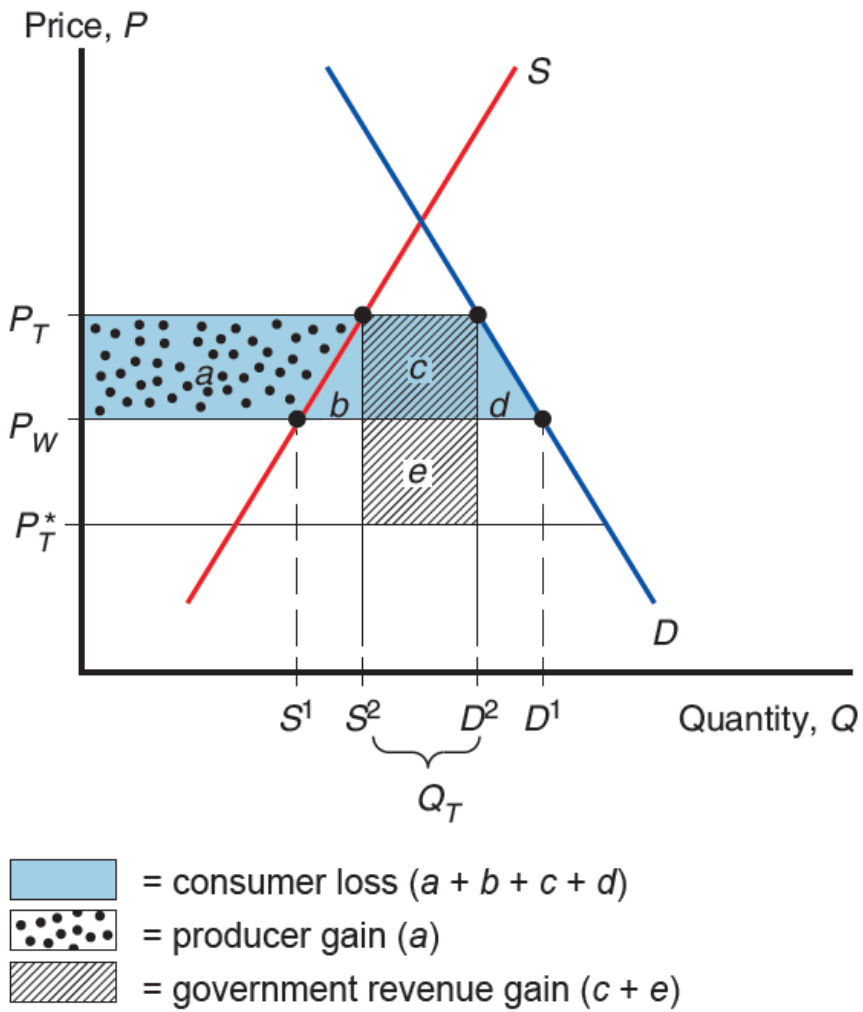


Net Effect of Tariff on National Welfare

- If we assume at margin, a rupee's worth of gain or loss is of same social worth to each group
- The net cost of a tariff

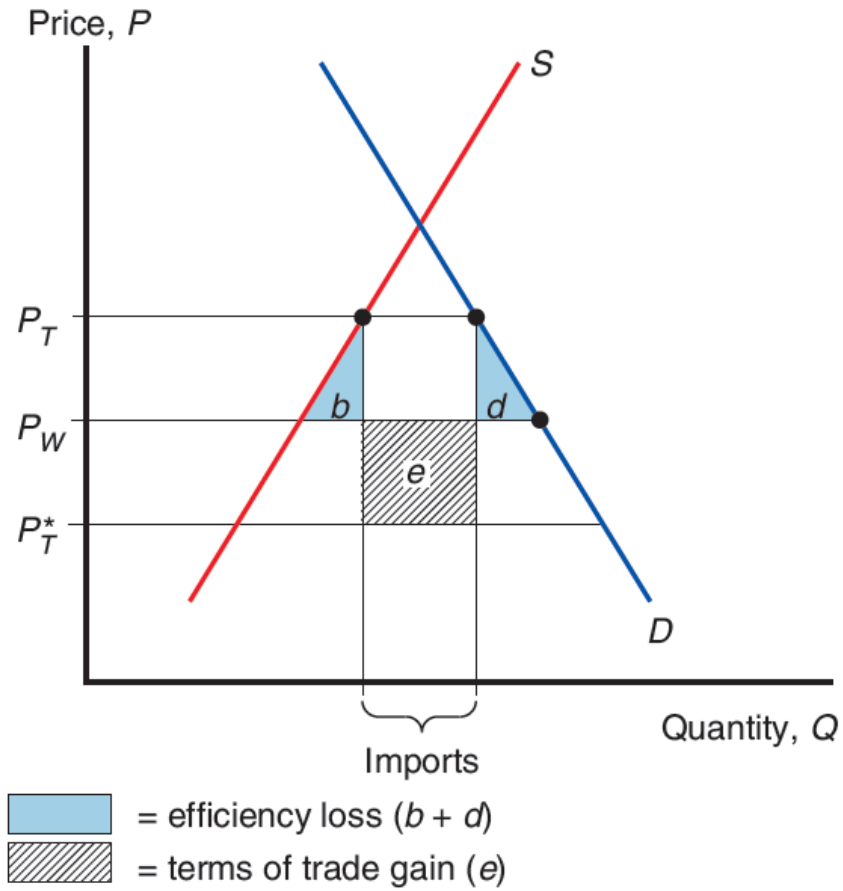
= Consumer loss - producer gain - government revenue

= $(a + b + c + d) - a - (c + e) = b + d - e.$



Net welfare effects of a tariff

- There are two “triangles” whose area measures loss to the nation as a whole and a “rectangle” whose area measures an offsetting gain.
- The triangles represent the **efficiency loss** that arises because a tariff distorts incentives to consume and produce,
- while the rectangle represents the **terms of trade gain** that arise because a tariff lowers foreign export prices.



Net welfare effects of a tariff

- The gain depends on the ability of the tariff-imposing country to drive down foreign export prices.
- If the country cannot affect world prices (the small-country case) region *e*, which represents the terms of trade gain, disappears, and it implies that the tariff reduces welfare.