Trade Policies:

Perfect competition

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Outline

- Arguments for Protection
- Import Tariffs
  - The impact of an import tariff
  - Stolper-Samuelson Theorem and distribution of income
  - The large country case
- Production Subsidy
- Export Taxes and Subsidies
- Nontariff Bariers

Arguments for Protection: as a social policy

- Infant industry argument:
  - Nurture domestic producers to realize economies of scale
  - The infant may not want to grow up.
- Trade taxes as a source of government revenue
  - Now a day only about 10% of government revenue in Thailand comes from trade taxes.
- National defense: in case of crisis, war; e.g., oil
  - not easy to identify which industries are needed for defense.
  - Other instruments may be more efficient than tariffs; e.g, production subsidies

Arguments for Protection: as a social policy

- Tariff to improve balance of trade: Assuming that exports are not affected, a tariff may improve trade balance. But
  - A tariff shrinks the trade triangle, exports are also reduced.
  - Retaliation by trading partners on home exports.
  - A reduction in foreign income and demand for home export goods.
  - Reduce ability to export because higher inputs costs that are subjected to tariffs.
  - Trade surplus may strengthen currency and cancel the effect.

Arguments for Protection: as a social policy

- The terms-of trade argument for protection: it is possible for a large country to use an optimum tariff rate to improve its welfare (beggar-my-neighbor policy).
  - Retaliation by trade partners.
- Tariff to reduce unemployment
  - Retaliation by trade partners to reduce their unemployment.
  - A reduction in foreign income and demand for home exports may also increase home unemployment.
  - Alternative macroeconomic policies may be more efficient, such as, expansionary fiscal or monetary policies.

Arguments for Protection: as a social policy

- Benefit a factor: by Stolper-Samuelson Theorem, a tariff on labor intensive goods benefits workers
  - The country as a whole loses welfare.
  - A direct tax on capitalists and redistributes to workers may be more efficient.
  - Under Specific-factor model, a tariff will definitely benefit the capitalist of the specific factor used in the protected industry, but worker welfare are ambiguous since real wage in terms of that protected good will fall while real wage in the exporting industry will rise.

Type of import tariffs: specific or ad valorem

- Specific Tariffs: import taxes that assign fixed monetary tax per physical unit of imported goods.
  - Example: 2 Baht/bottle of vine
  - easy to be apply but the protective ability varies inversely with the price of the import
- Ad Valorem Tariffs: import taxes that are levied as constant percentages of value of imported goods.
  - Example: 20%
  - the protective ability varies proportionately with the value

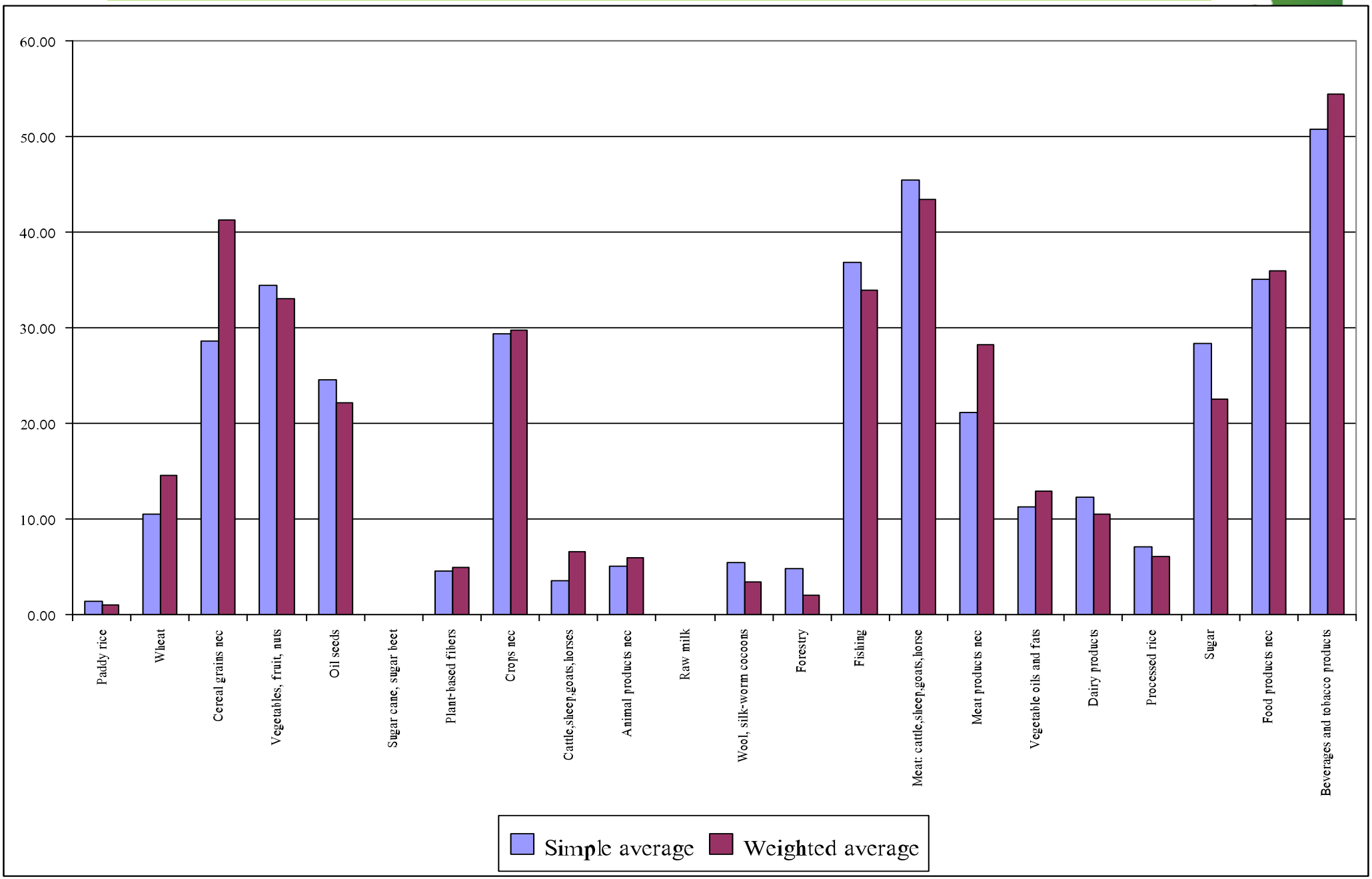
Measurement of Tariffs: average tariff

- Suppose there are three imported goods: good A, 10%; good B, 20%; good C, 30%.
- Unweighted-average tariff: simple average of the rates
  - (10%+20%+30%)/3 = 20%
  - ignore the importance of imports
  - if A is very importance, the average is overstated

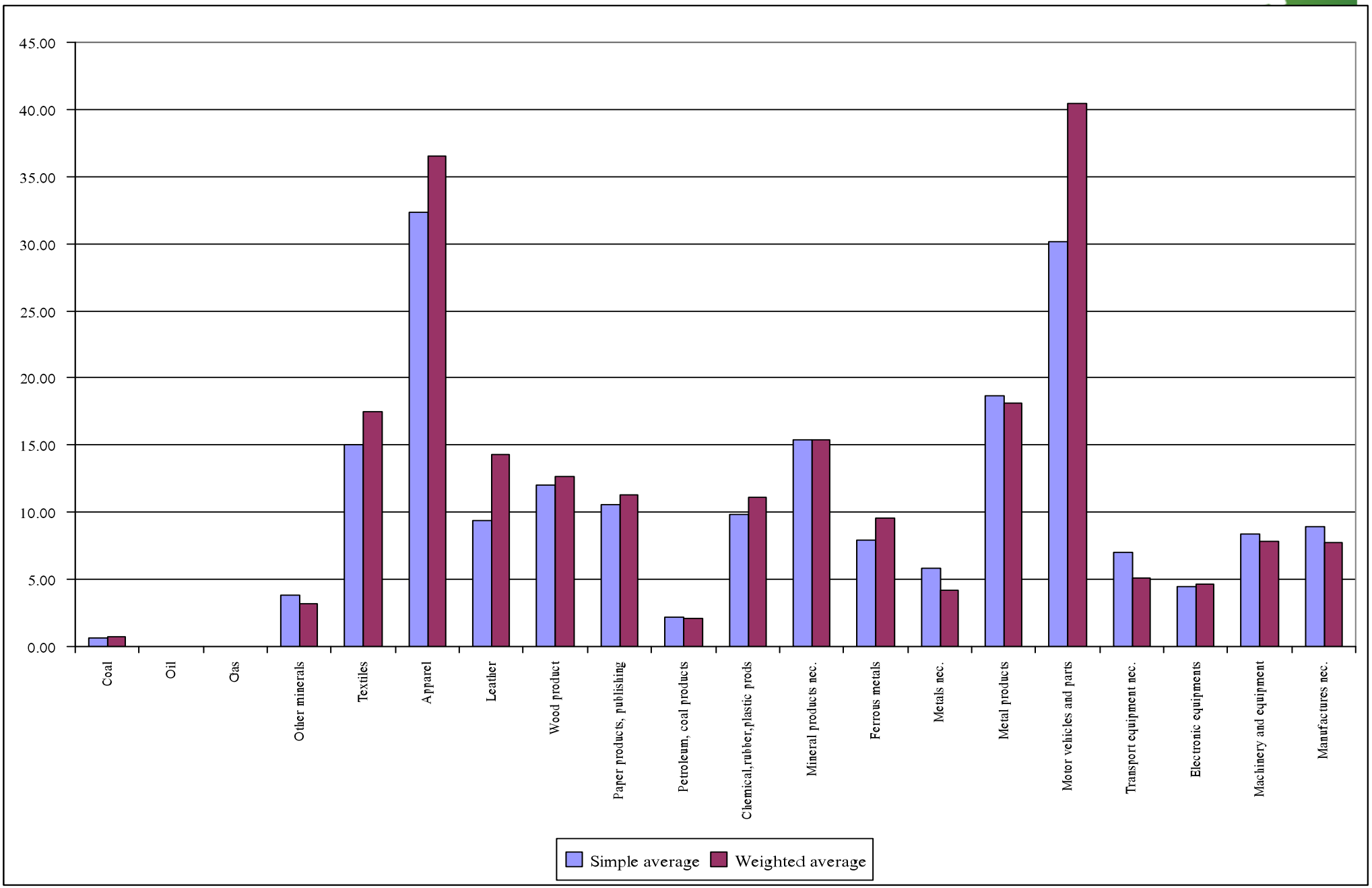
Measurement of Tariffs: average tariff

- Suppose there are three imported goods: good A, 10%; good B, 20%; good C, 30%.
- Weighted-average tariff: each good's tariff rate is weighted by the share of its import value.
  - Suppose the weights are: 0.5, 0.3, 0.2; the weighted-average is (10%)0.5+(20%)0.3+(30%)0.2 = 17%
  - tend to understate especially if the high tariff rates are prohibitive (the rate is so high such that import is zero).
  - E.g., the weights are: 0.6, 0.4, 0; the weighted-average is (10%)0.6+(20%)0.4+(30%)0 = 14%

Thailand tariff rates, agriculture, 2001



Thailand tariff rates, manufacture, 2001



Thailand tariff rates, 2001

- Unweighted average rates
  - Agriculture = 18.21
  - Manufactures = 10.31
  - Merchandise = 14.71
- Weighted average rates
  - Agriculture = 18.75
  - Manufactures = 11.12
  - Merchandise = 15.12

Nominal versus Effective Tariff Rates

- Nominal tariff rate: the rate listed in a country's tariff schedule. It is the extent to which the price of the good to domestic consumers is raised by the tariff.
- Effective rate of protection (ERP): the extent to which value added in the domestic import-competing industry is altered by the tariff rates on the final good and intermediate goods or by the whole tariff structure.

Nominal versus Effective Tariff Rates

- F is a final good and goods A and B are intermediate goods.
- One unit of A and B is used in producing 1 unit of F
- Free trade: $P_F = 1{,}000$, $P_A = 500$, $P_B = 200$,

  The value added: $VA = 1{,}000 - 500 - 200 = 300$
- With tariffs: $t_F = 10\%$, $t_A = 5\%$, $t_B = 8\%$

  Tariff protected price $P'_F = 1{,}000 + .1(1{,}000) = 1{,}100$

  $P'_A = 500 + .05(500) = 525$

  $P'_B = 200 + .08(200) = 216$

The value added with protection: $VA' = 1{,}100 - 525 - 216 = 359$

Effective Rate of Protection

- ERP $= (VA' - VA)/VA = (359 - 300)/300 = 0.197 = 19.7\%$
- Even the nominal tariff rate is 10% but the effective protective rate for the final good is 19.7%.
- An alternative formula

$$ERP_j = \frac{t_j - \sum_i a_{ij} t_i}{1 - \sum_i a_{ij}}$$

- $a_{AF} = 500/1000 = 0.5$, $a_{BF} = 200/1000 = 0.2$,

$$= \frac{0.1 - [.5(0.05) + .2(0.08)]}{1 - (.5 + .2)} = \frac{0.1 - 0.025 - 0.016}{0.3} = 0.197$$

Effective Rate of Protection

- Let assume the all t_i are equal and $t_i = bt_j$. Then

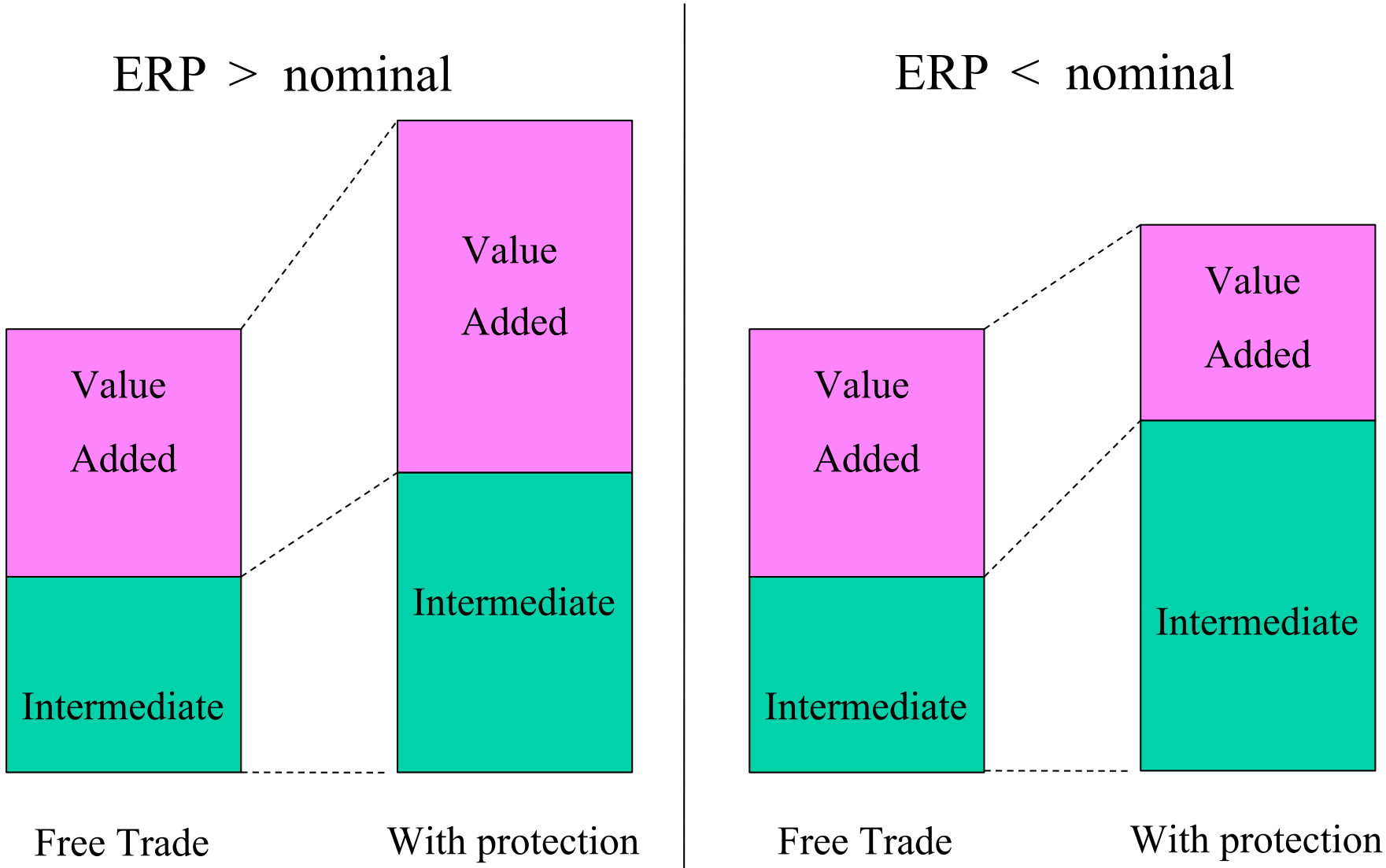
$$ERP_j = \frac{t_j - \sum_i a_{ij} t_i}{1 - \sum_i a_{ij}} = \frac{t_j - \sum_i a_{ij} bt_j}{1 - \sum_i a_{ij}} = \frac{t_j \left[1 - b \sum_i a_{ij} \right]}{1 - \sum_i a_{ij}}$$

  - If $b = 1$ or $t_j = t_i$, $ERP_j = t_j$.
  - If $b < 1$ or $t_j > t_i$, $ERP_j > t_j$.
  - If $b > 1$ or $t_j < t_i$, $ERP_j < t_j$.

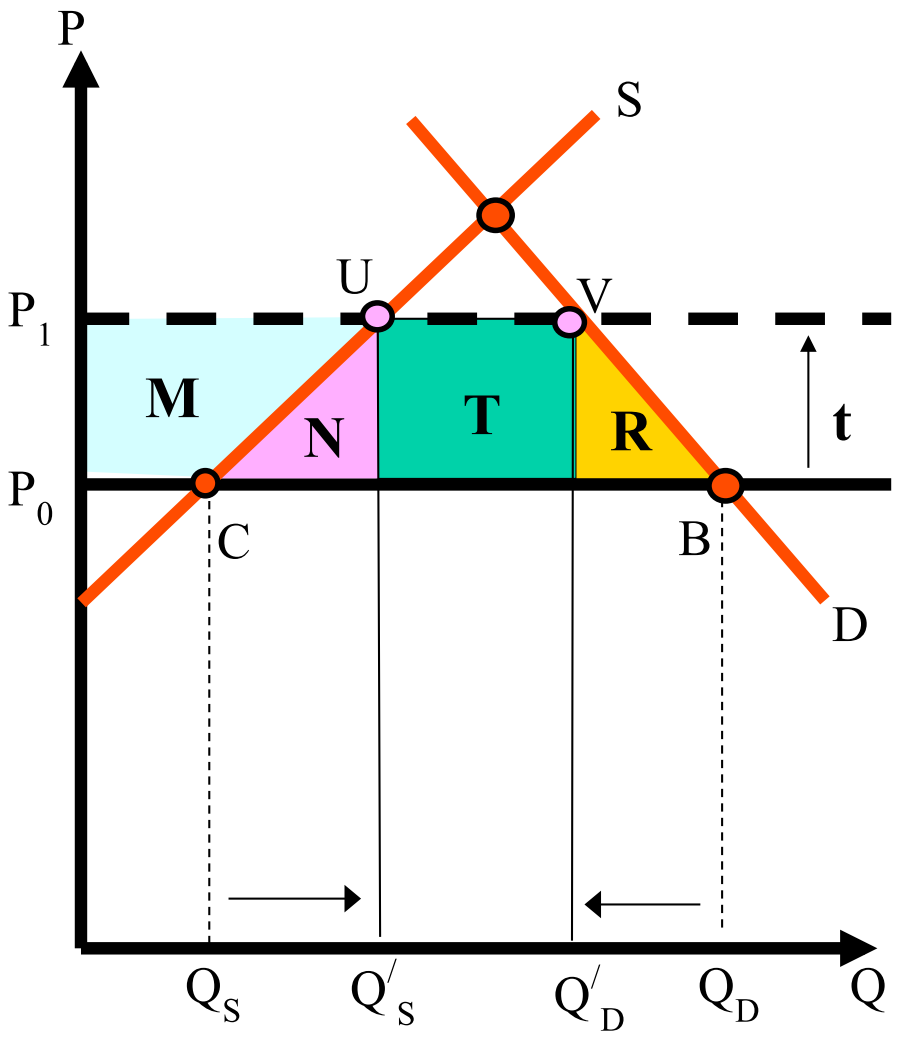
Nominal versus Effective Tariff Rates

- If the nominal tariff rate (t_j) on the final good is higher than the weighted average nominal tariff rate on the inputs ($b < 1$), ERP > t_j.
  - This case is called escalated tariff structure.
  - The final good is protected more than inputs.
- If they are equal ($b = 1$), ERP = t_j.
- If t_j is lower than the weighted average of t_i ($b > 1$), ERP < t_j.
  - Note that ERP can be negative.
  - The final good is penalized by the tariff structure.

Nominal versus Effective Tariff Rates



The impact of an import tariff: the small country case



- Increases domestic output.
- Decreases quantity demanded.
- Decreases imports.
- Welfare changes:

ΔPS =

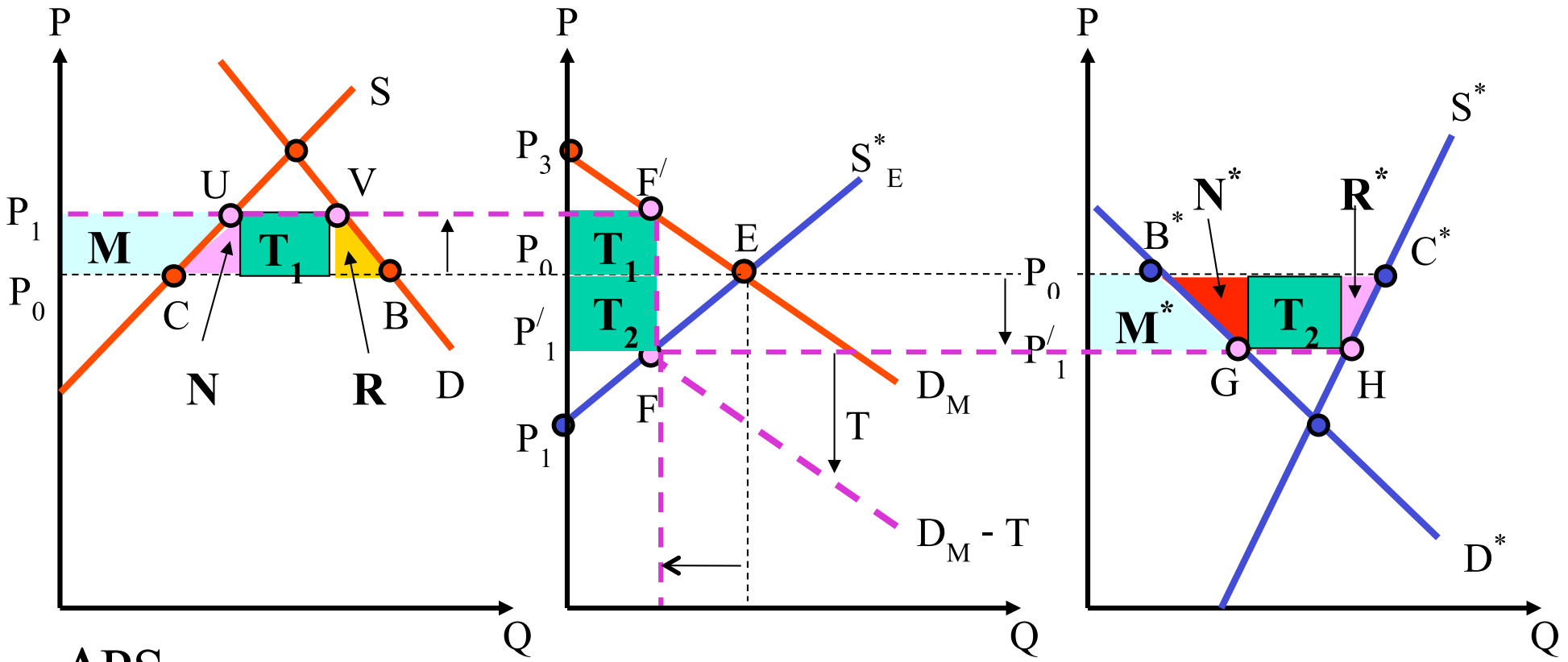
ΔCS =

ΔGR =

Net =

- A small country cannot be better off by imposing an import tariff.

The impact of an import tariff: the large country case



ΔPS =

ΔCS =

ΔGR =

Net =

ΔCS* =

ΔPS* =

Net =

The impact of an import tariff: the large country case

- Change in welfare of the importing country:

  = T_2 - [N+ R] (can be + or -) where

T_2 = Terms of Trade Effect. Import tariff decreases the import demand and depresses the export price, P_0 --> P'_1. It is in the form of tariff revenue transferred from the exporting country.

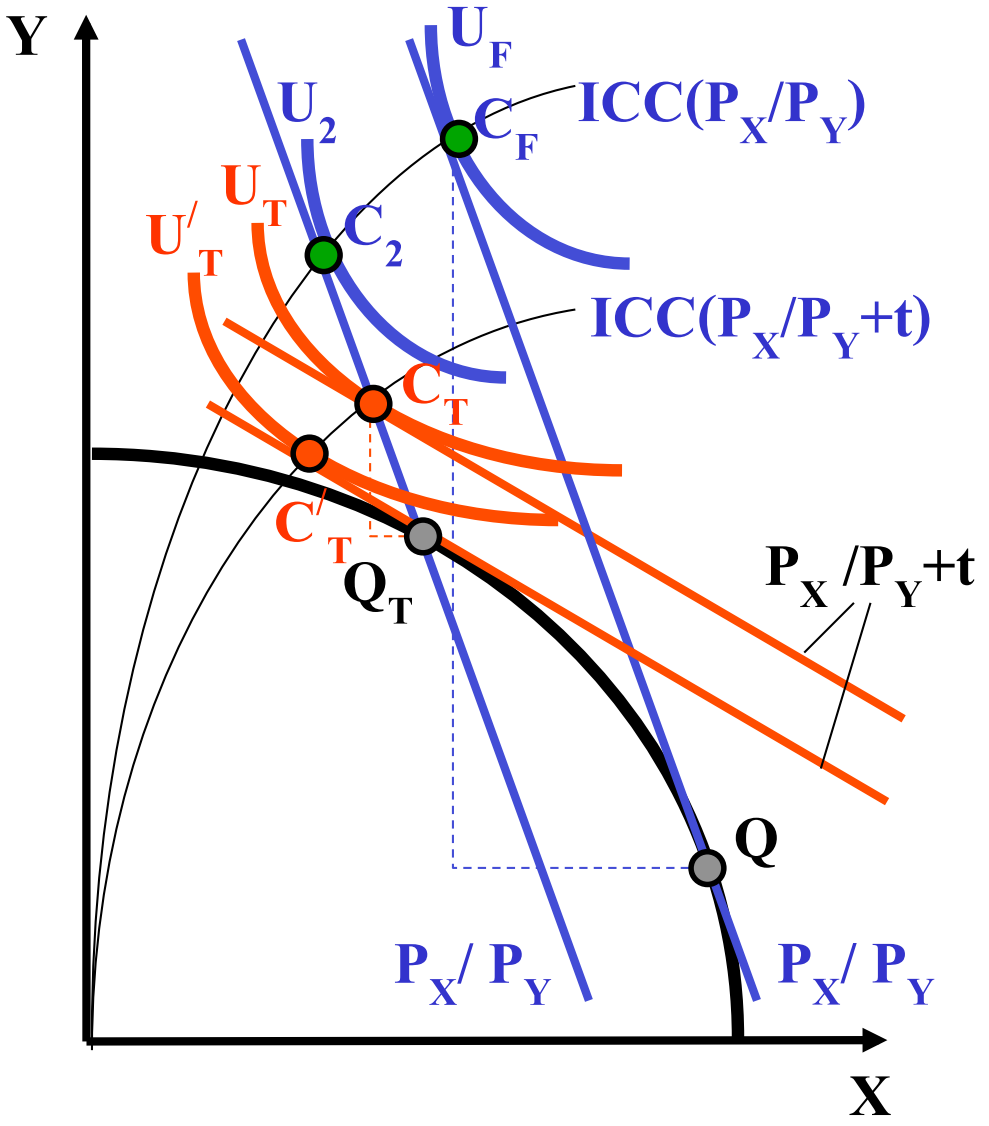
N = Production distortion, R = Consumption distortion.

The impact of an import tariff: the large country case

- It is possible for a large country to be better off by using an import tariff!
- The tariff rate that maximizes welfare is called the optimum tariff rate.
- Change in welfare of the exporting country:

  $= - [N^* + T_2 + R^*] < 0.$
- The exporting country is always worse off.
- Q: Can world welfare increase?

General equilibrium analysis for a tariff



- Free trade: produce at Q, consume at C_F.
- A tariff on Y, $P_Y + t$.

$$|MRT| = P_X / P_Y + t.$$

- Tariff: produce at Q_T, consume at C_T on the ICC (P_X/P_Y+t) with tariff revenue derived from Q_T at free trade prices.

General equilibrium analysis for a tariff

Keep in mind that

- Trade between home country and the rest of the world must be at world relative prices (P_X/ P_Y).
- The tariff shifts the production away from its most efficient point (Q) and lower its income at world price.
- Home can only consume a bundle of goods (C_T) equal in value at world prices of what it produces (Q_T).
- Home consumers face the tariff-distorted domestic price ratio (P_X/ P_Y+t) and receive redistributed tariff revenue.

General equilibrium analysis for a tariff

1) Resources are shifted from X to Y (protected sector)
   -> output of X is decreased and output of Y is increased.

2) D_Y falls since when P_Y rises, substitution and income effect reinforcing each other
   - D_Y falls, D_X rises by substitution effect.
   - Real income falls -> both D_Y and D_X fall by income effect (assuming X and Y is non-inferior).

   D_X may rise or fall since substitution effect and income effect work in opposite direction (assuming X is non-inferior)

General equilibrium analysis for a tariff

3) Fall in imports of Y by 1) output of Y is increased and and 2) consumption of Y is decreased.

4) Fall in exports of X because the trade triangle at the constant world relative price is smaller -> a tariff penalizes both imports and exports.

5) Welfare declines from U_F to U_T.

6) If an equivalent production subsidy on Y is used instead, consumers will face the world price and can consume at C_2. Welfare will be reduced only from U_F to U_2.

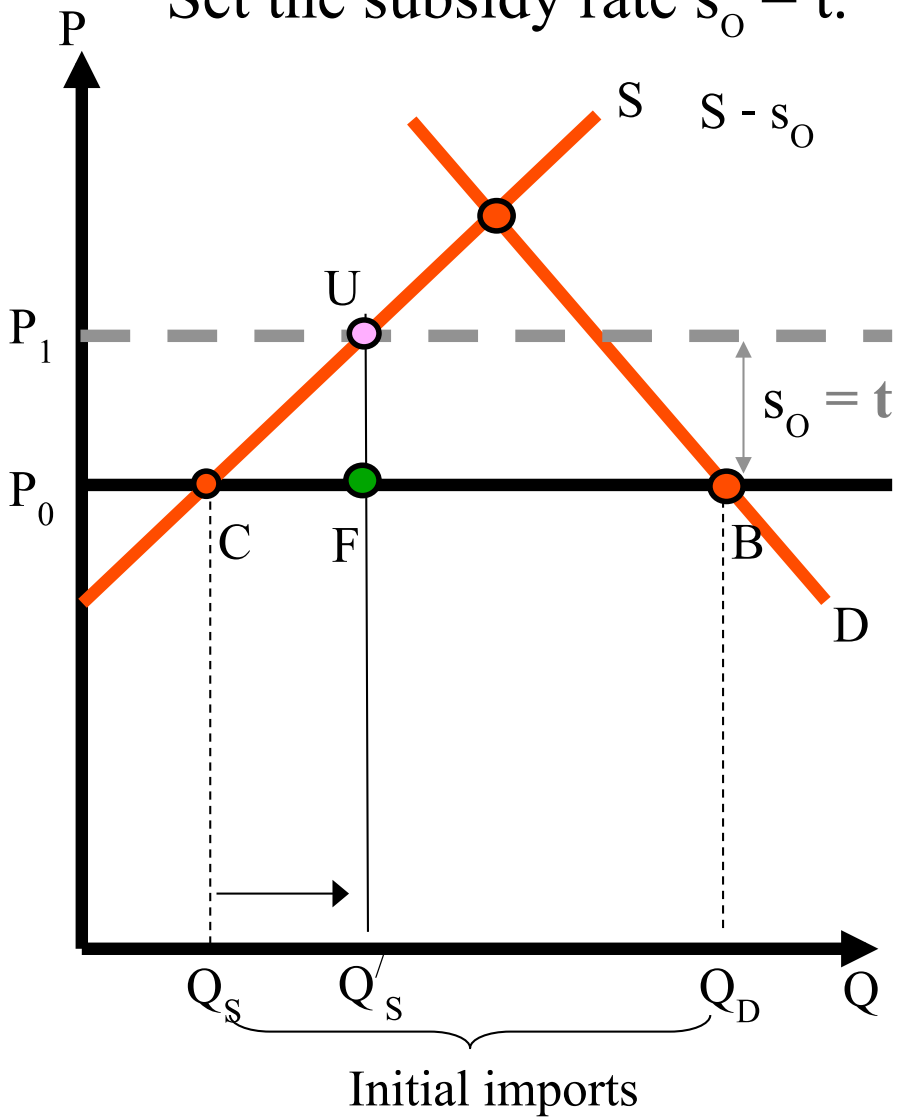
To protect the domestic producer, an equivalent production subsidy is more efficient than a tariff

Stolper-Samuelson Theorem and tariffs

- The Stolper-Samuelson Theorem: If there are CRTS and if both goods continue to be produced, a relative increase in the price of a commodity will increase the real return to the factor used intensively in that industry and reduce the real return to the other factor.
- If a tariff is impose on a capital intensive good, the real return to capital will be increased while the real wage will be decreased.

Production subsidies: Small country case

Set the subsidy rate $s_O = t$.



- Increases domestic output.
- Same quantity demanded.
- Decreases imports, but less.
- Welfare changes:

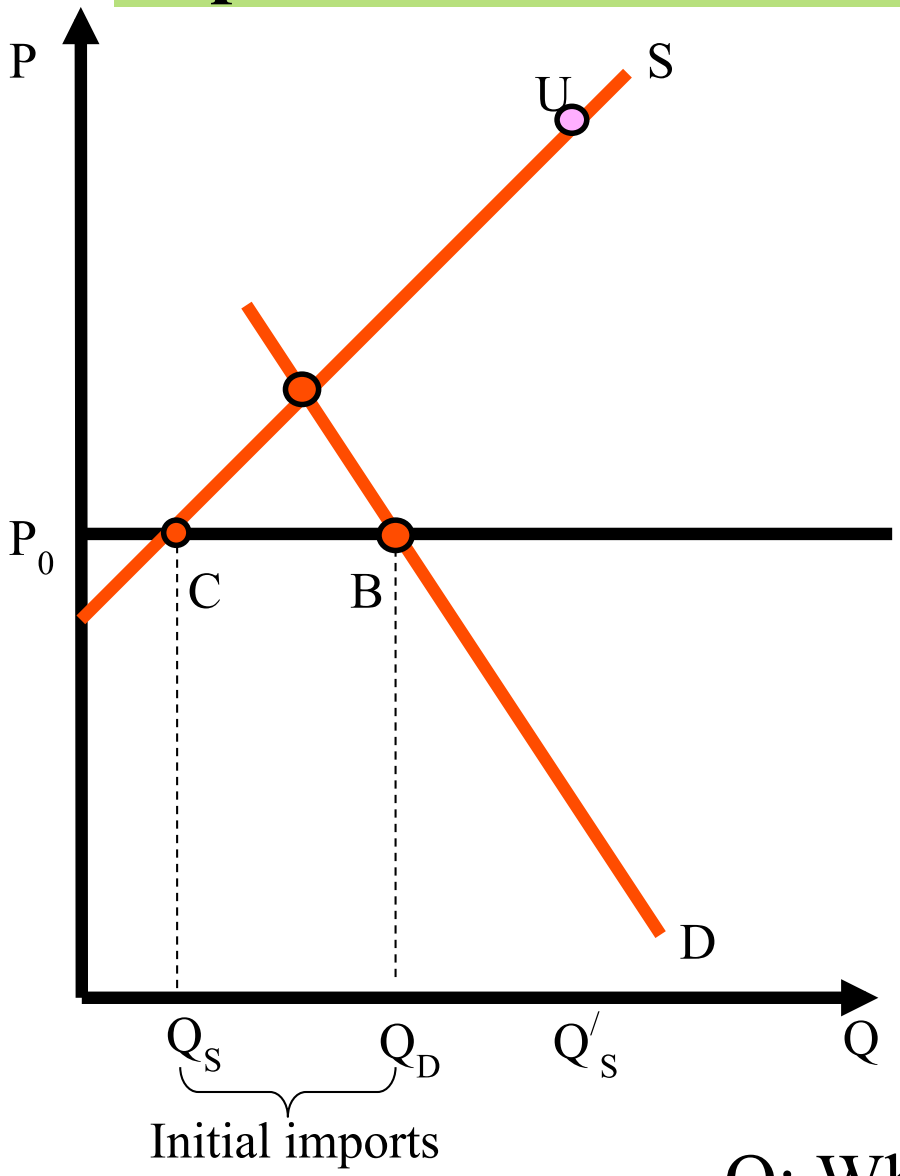
$\Delta PS =$, $\Delta CS =$

$\Delta GR =$

Net =

- To protect the domestic producer, an equivalent production subsidy is more efficient than a tariff.

Production subsidies that turns imports to exports



- Same quantity demanded.
- Increases domestic output.
- If the subsidy rate is sufficiently large, the country may export instead.

• Welfare changes:

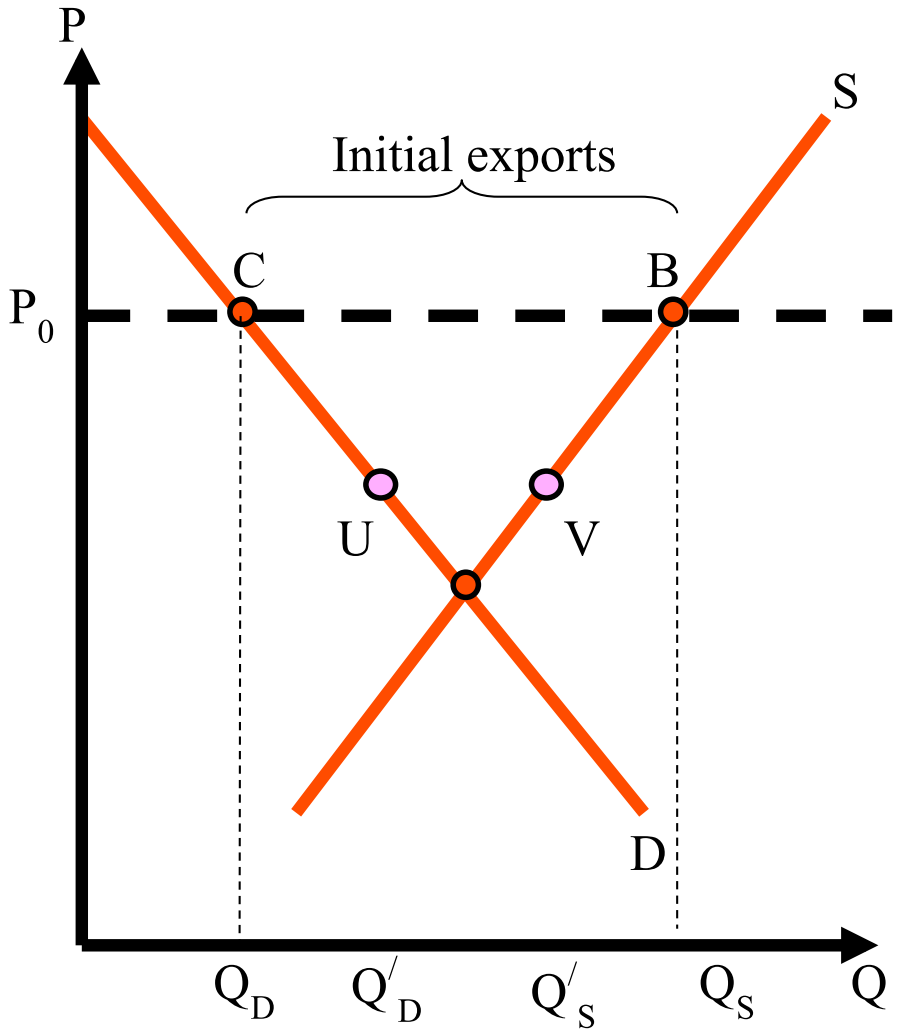
$\Delta PS = M, \quad \Delta CS = 0$

$\Delta GR = -[M + N]$

Net = - N, deadweight loss.

Q: What if price elasticity of S is less?

Export taxes: Small country case



- Decreases domestic price.
- Increases quantity demanded.
- Decreases quantity supplied.
- Decreases exports.
- Welfare changes:

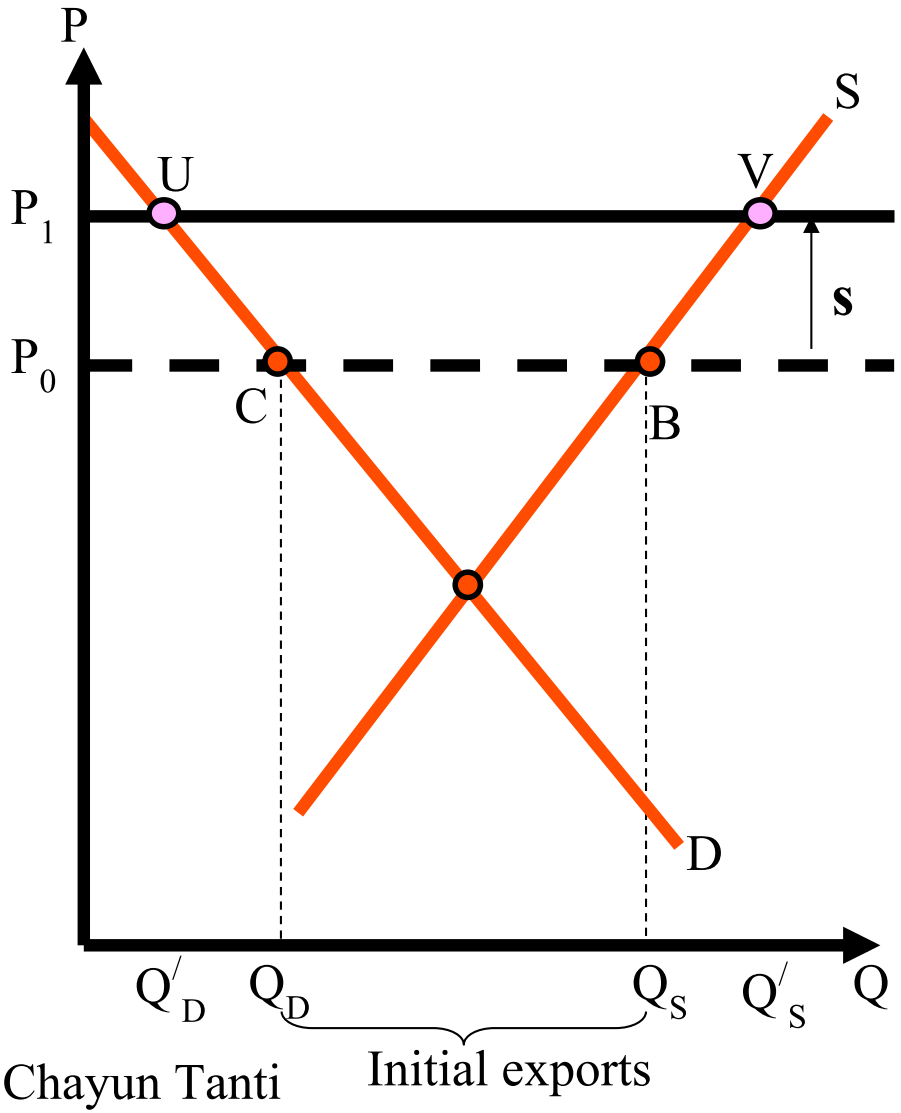
$\Delta CS =$

$\Delta PS =$

$\Delta GR =$

Net =

Export subsidies: Small country case



- Increases domestic price.
- Decreases quantity demanded.
- Increases quantity supplied.
- Increases exports.
- Welfare changes:

ΔCS =

ΔPS =

ΔGR =

Net =

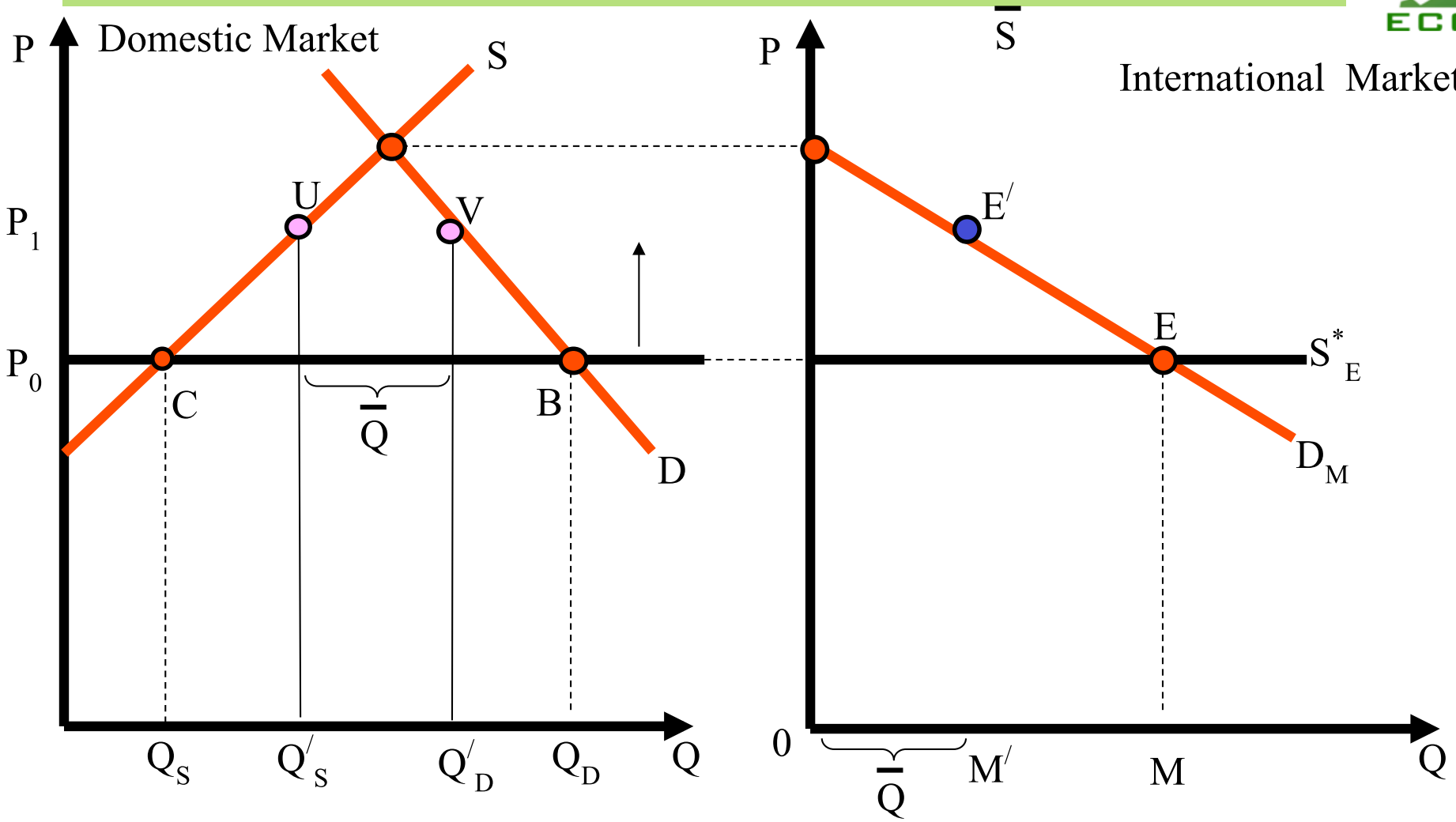
Nontariff barriers

- Import quota: a limit on the quantity of a good that may be imported in a given time period
- Tariff quota: a combination of tariff and quota
- Technical standard
- Antidumping duty
- Countervailing duty (against subsidies)
- License requirement
- Customs valuation, classification & procedure

Import Quotas

- Global quotas: only certain units of a product is allowed to be imported regardless of the origin.
- Country-specific quotas:
  - Import quotas of textiles and apparel under Multifiber Arrangement.
  - Trade embargo or economic sanction: prohibit trade of several or all categories of goods with some specific country.

Import Quotas: Small country case



ΔPS = , ΔGR =

ΔCS = Net =

Import Quotas: Small country case

- The import quota limits the import supply at $\bar{S}$.
- The domestic price in the importing country increases to P_1.
- Welfare changes:

  $\Delta PS = M$, $\Delta CS = -[M + N + T + R]$

  $\Delta GR = 0$, if the quota is given away to importers.

  $= T$, if the quota is auctioned off to the highest bidder

Net $= -[N + R] < 0$. The "quota rent" T is transferred to the "lucky" importer.

- The same result can be achieved by shifting the domestic demand to the left to $D - \bar{Q}$.

An import quota v.s. a tariff

A tariff at a rate of $t = P_1 - P_0$ per unit will generate the same impacts on prices and imports if the quota is licensed or auctioned off with competitive auction market.

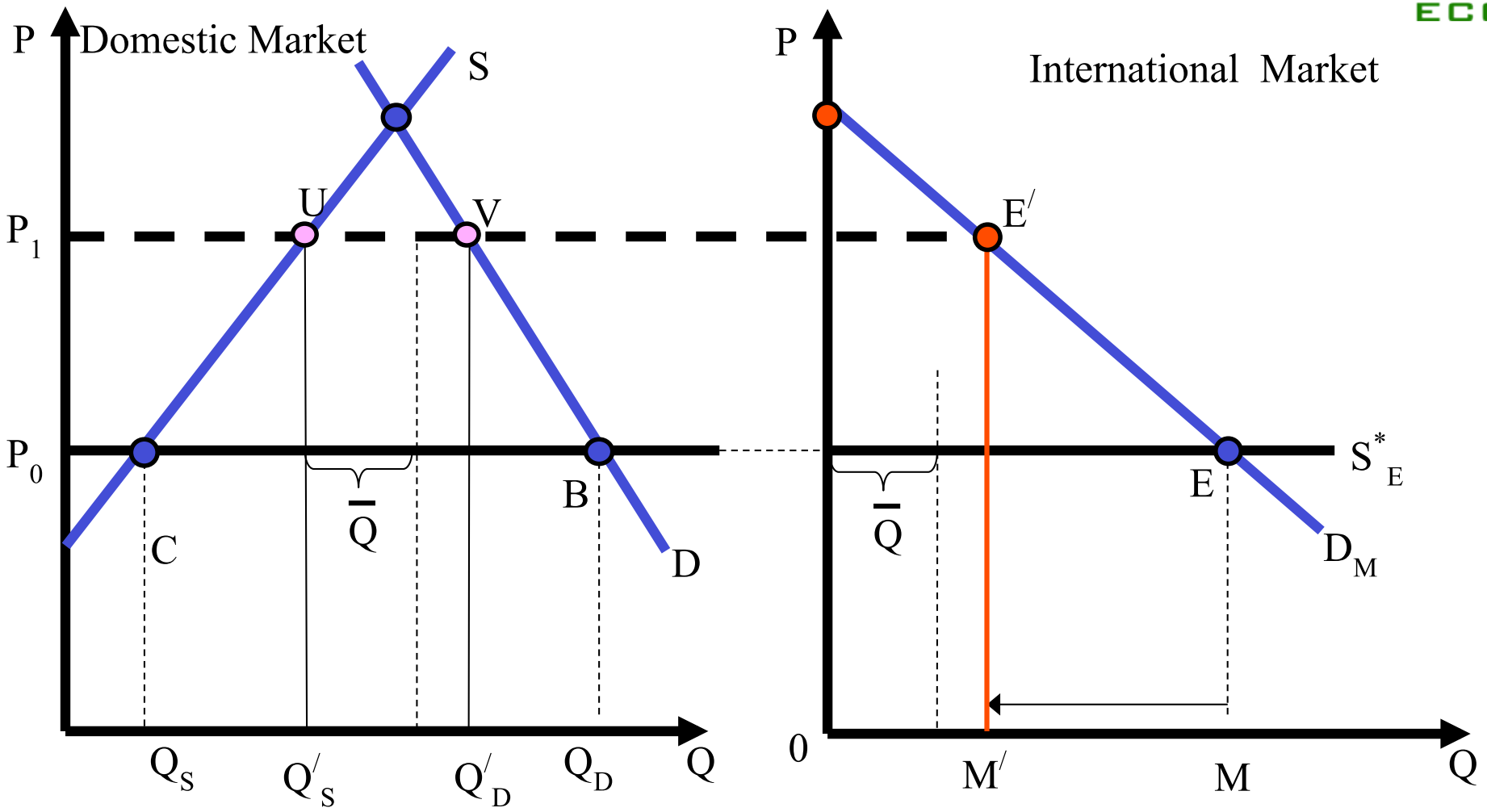
- But quotas worsen income distribution, involve corruption and directly unproductive profit-seeking (DUP) activities -> quotas are worse than equivalent tariffs.

Tariff quotas or Two-tier tariff

- Allow a specified number of goods to be imported at one tariff rate (within quota rate). Any import beyond the quota is subject to a higher tariff rate.
- Example: 5% for the first 10 million tons,

  25% after that.
- This is one way to get allow the current pressure to lower the tariff rates under WTO.

Tariff quotas



ΔPS = ,

ΔCS =

ΔGR =

T* = quota rents

Tariff quotas

- Welfare change:

  $\Delta PS = M,$

  $\Delta CS = -[M + N + T + T^{*} + R],$

  $\Delta GR = T,$

  T^{*} = quota rents to the "lucky" importers,

  Net = $-[N + R]$, deadweight losses.

- The result is worse than when a tariff rate = t_O is used since it worsen the distribution of income and encourage corruption.