EE451

CHAPTER 8:
THE INSTRUMENTS OF TRADE POLICY

Coverage of the Chapter

- Import tariffs
  - Specific tariffs
  - Ad Valorem tariffs
  - Other features of tariff schedules
    - Preferential duties
    - Most-favoured-nation (MFN) treatment
    - Offshore assembly provision
  - Measurements of tariffs
    - The ‘height’ of tariffs
    - ‘Nominal’ versus ‘effective’ tariff rates
- Export Taxes and Subsidies

Coverage of the Chapter

- Nontariff Barriers
  - Import quotas
  - Voluntary Export Restraints (VERs)
  - Government Procurement Provisions
  - Domestic Procurement Provisions
  - European Border Taxes
  - Administrative classification
  - Restrictions on Services Trade
  - Trade-Related Investment Measures (TRIMs)
- Domestic policies that affect trade

Measurement of a Country's Average Tariff Rate

- (I) Unweighted average tariff rate (UAT)

Goods	Tariff (%)
A	10
B	15
C	20

$$average = \frac{10\% + 15\% + 20\%}{3} = 15\%$$

- Drawback: not take into a/c the relative importance of imports

Measurement of a Country's Average Tariff Rate

- (II) Weighted average tariff rate (WAT)

Goods	Tariff (%)	Import Values (1000s)
A	10	500
B	15	200
C	20	100

$$average = \frac{10\%(500)+15\%(200)+20\%(100)}{500+200+100} = 0.125 \quad or \quad 12.5\%$$

- An inclusion of a prohibitive tariff (a rate that is so high that it totally prohibits imports) could result in the same WAT.
  - eg: let's consider Good D with tariff = 200% and so import values = 0.

Nominal vs Effective Rates

- Nominal Tariff Rates
  - Specific rates
  - Ad valorem rates
- Effective Rate of Tariff (ERP)
  - Measure percentage change in the value added in an industry because of an imposition of a tariff structure.

A Computation of ERP

- Given 3 goods:
  - F = final product where $F = f(A,B)$
  - A & B = intermediate products
- Under free trade:
  - $P_F = 1{,}000$
  - $P_A = 500$
  - $P_B = 200$

  $VA_F = 300$
- Under protection:
  - $t_F = 10\% \rightarrow P_F' = 1{,}000 + 10\%(1{,}000) = 1{,}100$
  - $t_A = 5\% \rightarrow P_A' = 500 + 5\%(500) = 525$
  - $t_B = 8\% \rightarrow P_B' = 200 + 8\%(200) = 216$

A Computation of ERP

- Under protection:
  - $t_F = 10\% \rightarrow P_F' = 1{,}000 + 10\%(1{,}000) = 1{,}100$
  - $t_A = 5\% \rightarrow P_A' = 500 + 5\%(500) = 525$
  - $t_B = 8\% \rightarrow P_B' = 200 + 8\%(200) = 216$

Consumers pay higher prices

$$VA_F' = 1{,}100 - (525+216) = 359$$

Factors of production working in industry F will receive higher returns than under free trade.

$$ERP_F = \frac{VA_F' - VA_F}{VA_F} = \frac{359 - 300}{300} = 0.197$$

A More Common Formula of ERP

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

j = final product;
i = inputs,
t_j = nominal rate on final good
t_i = nominal rate on input i.

Inputs	a_{ij}	Tariff (%)
A	500/1000 = 0.5	5
B	200/1000 = 0.2	8

$$ERP_j = \frac{t_j - \sum_i a_{ij} t_i}{1 - \sum_i a_{ij}} = \frac{0.1 - \left[(0.5 * 0.05) + (0.2 * 0.08)\right]}{1 - \left[0.5 + 0.2\right]}$$

$$= \frac{0.1 - 0.041}{0.3} = 0.197$$

Three General Rules of ERP

- If $t_j > WAT_i$ then $ERP_j > t_j$ *(escalated tariff structure)*
- If $t_j < WAT_i$ then $ERP_j < t_j$
- If $t_j = WAT_i$ then $ERP_j = t_j$
- Note:
  - ERP can be negative, meaning that WAT_i are ***considerably higher*** than t_j.
  - For producers, factors tend to flow into industry with higher ERP_j.
  - Nominal rate of tariff would be more often judged by consumers as it would affect their welfare.

ERP once again

- The effective rate of protection (or ERP) is a summary measure of the total protective effect of the overall **tariff structure**.
  - Tariffs on final goods improve the returns to factors employed in producing them, whereas tariffs on intermediate goods reduce the returns to those same factors.

Tariff structure refers to the relationship among tariffs in related industries.

Why Calculating ERP?

- Concerned with the welfare effects of protection.
- The presence of intermediate goods needs to be acknowledged.
  - Tariffs on steel, for instance, would raise the cost of producing automobiles, even if there were a protective tariff on cars.
- The term ‘effective protection’ refers to the fact that all such tariffs need to be taken into account into computing the net protective structure of the tariff structure.

What does ERP tell us?

- When $ERP_j > t_j$, the combined tariff structure **effectively raises** payment to primary factors producing the *j* product.
- This means the nominal tariff has a magnified effect on the value added.
- When there are no intermediate goods, ERP reduces to the nominal rate.
- When all the nominal rates are equal, the effective rate has the same value ➔ this means 'uniform nominal protection implies uniform effective protection.

What does ERP tell us?

- The formula also shows how tariffs and taxes applied to an industry's intermediate inputs reduce the ERP afforded to the industry.
- A sector may be protected by positive nominal tariffs at the final stage and yet receive negative effective protection if the tariffs and taxes applied to its intermediate inputs are sufficiently high.
- It appears to capture certain general equilibrium phenomena in a simply way.

The Impact of an Import Tariff

- A small country case
- A large country case
  - Distribution of tariff incidence
- Tariffs are costly to an economy because
  - They distort the prices paid by consumers.
  - They divert resources away from more productive uses and result in trade pattern that is different from what CA or HO predicts.
- In conclusion, tariff reduces welfare in terms of a creation of deadweight loss (**production distortion loss plus consumption distortion loss)**.

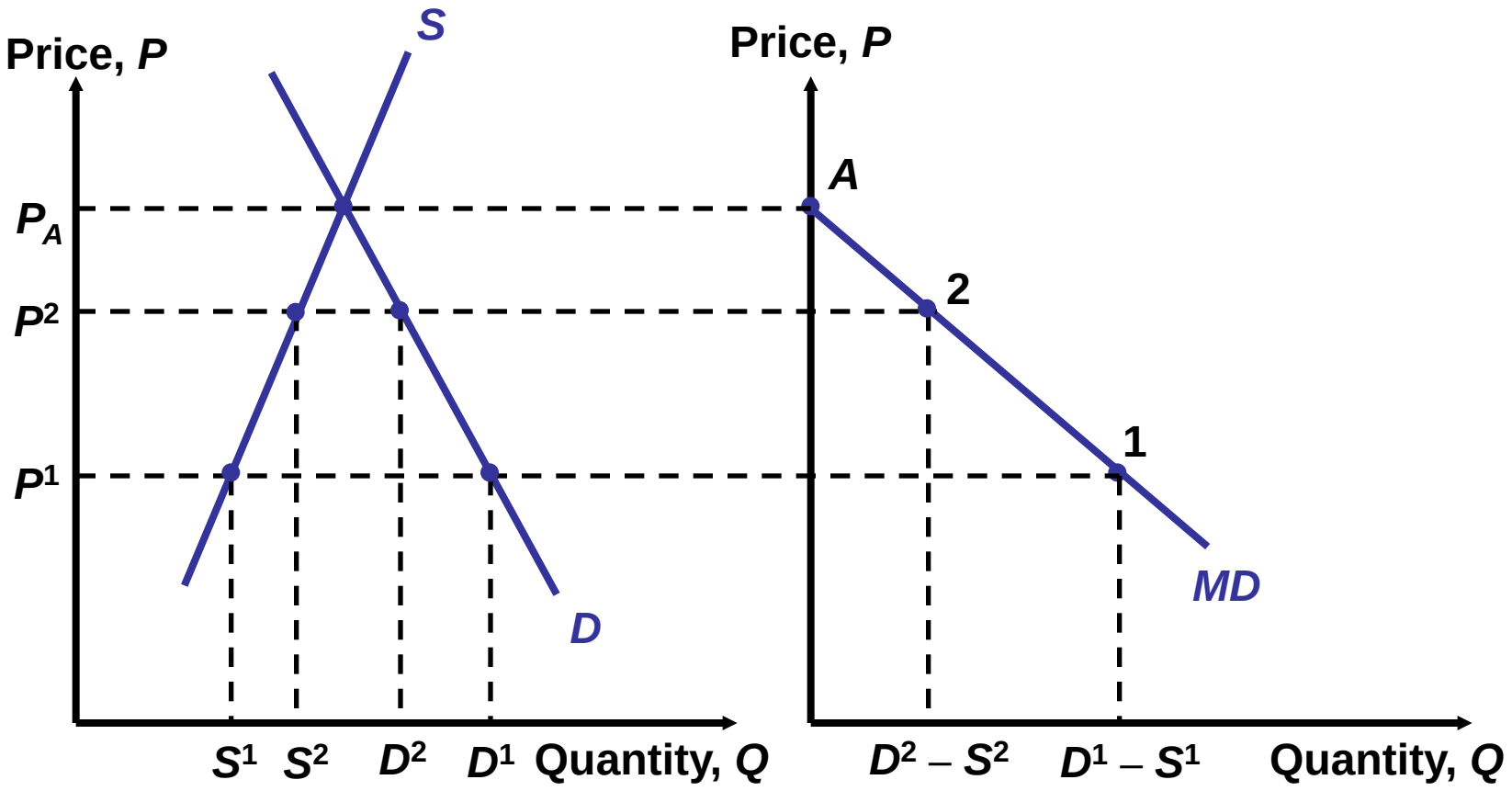
Costs & Benefits of Import Tariff

- However, loss in consumer surplus may be offset by government revenue if the it was spent on productive alternatives.
- While the nation faces the loss in terms of efficiency loss (or deadweight loss), it could be offsetted by the terms of trade gain.
  - The **efficiency loss** arises because a tariff distorts incentives to consume and produce.
  - The **terms of trade gain** arises because a tariff lowers foreign export prices.

Trade Restrictions in a Partial Equilibrium Setting: The Large-Country Case

- A large country, unlike a small country, can influence world price.
- To determine the world price (P_w) and the quantity trade (Q_w), two curves are defined:
  - Home **import demand curve**
    - Shows the maximum quantity of imports the Home country would like to consume at each price of the imported good.
      - That is, the excess of what Home consumers demand over what Home producers supply: $D_M = D(P) - S(P)$
  - Foreign **export supply curve**
    - Shows the maximum quantity of exports Foreign would like to provide the rest of the world at each price.
      - That is, the excess of what Foreign producers supply over what foreign consumers demand: $S_X = S^*(P^*) - D^*(P^*)$

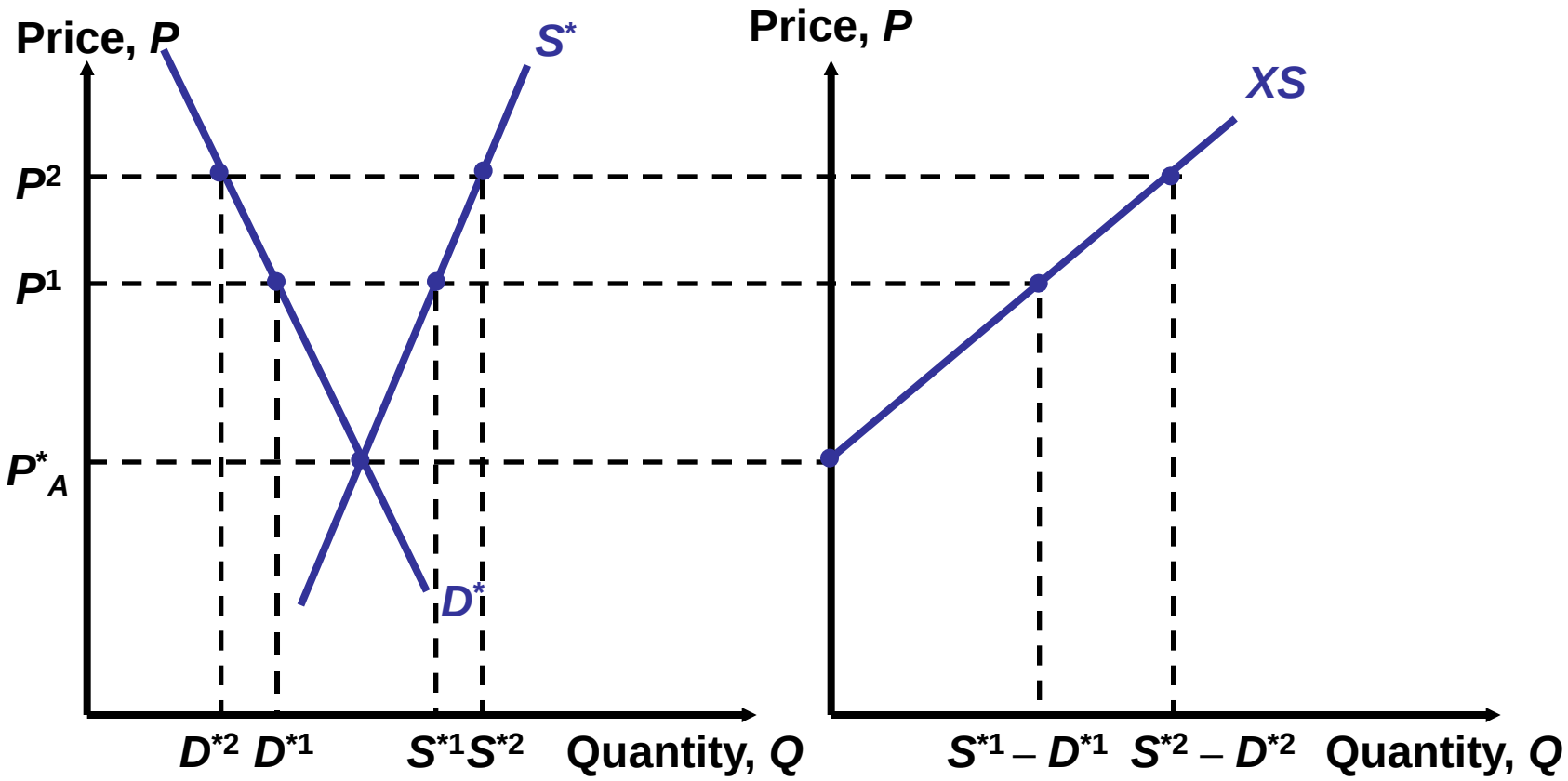
Deriving Home's Import Demand Curve



Properties of the import demand curve

- It intersects the vertical axis at the closed economy price of the importing country.
- It is downward sloping.
- It is flatter than the domestic demand curve in the importing country.

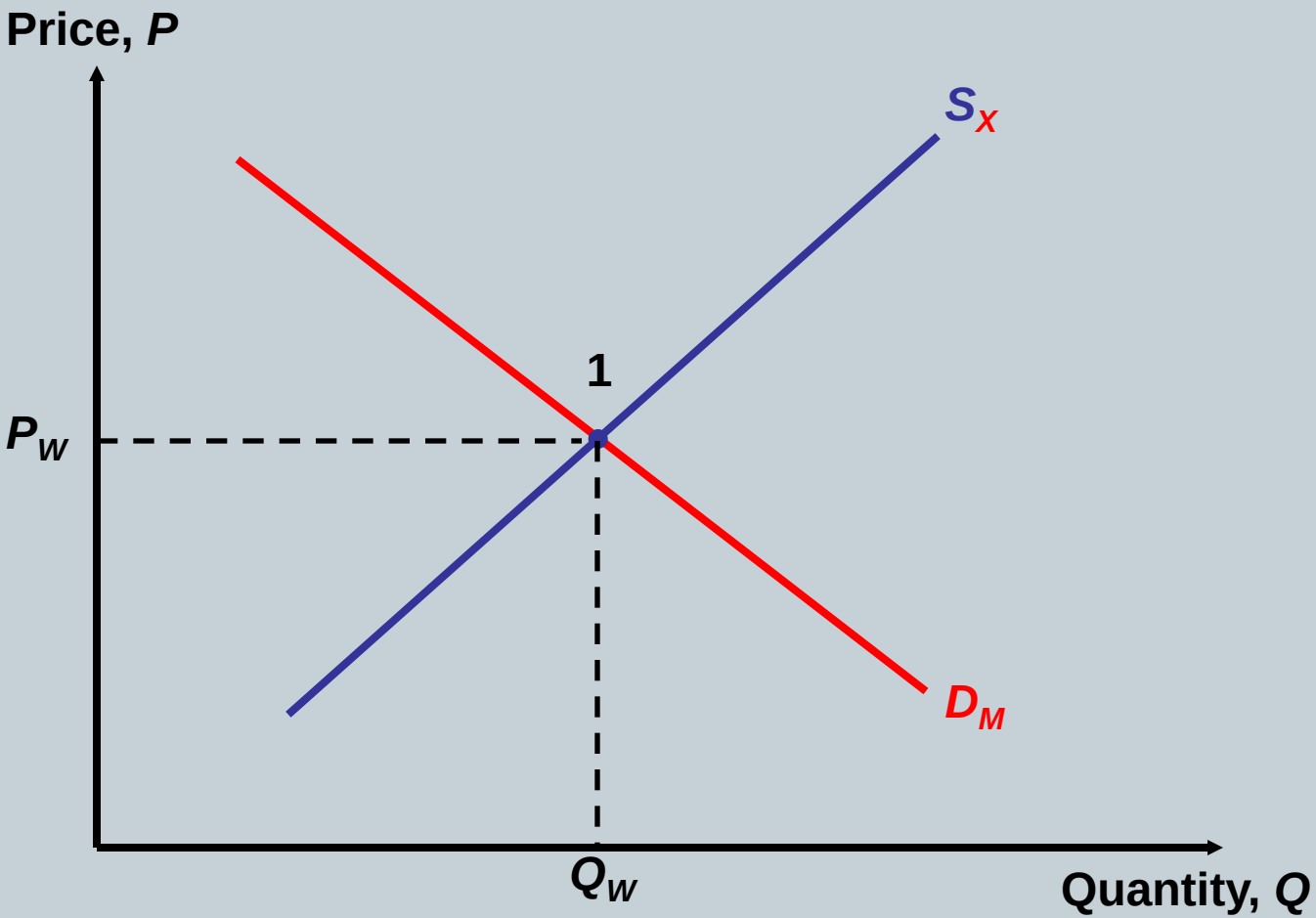
Deriving Foreign's Export Supply Curve



Properties of the export supply curve

- It intersects the vertical axis at the closed economy price of the exporting country.
- It is upward sloping.
- It is flatter that the domestic supply curve in the exporting country.

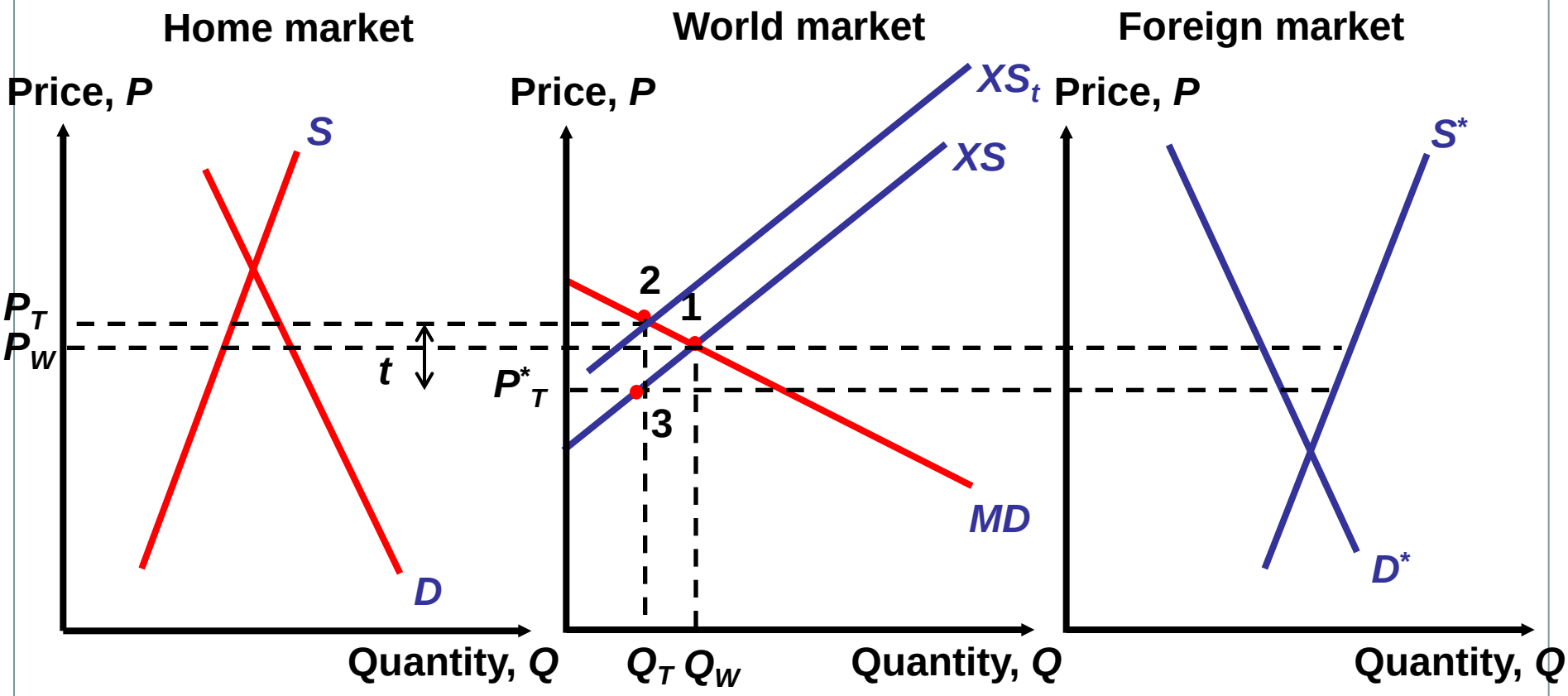
World Equilibrium



Effects of a Tariff

- Assume that two large countries trade with each other.
  - Suppose Home imposes a tax of $2 on every bushel of wheat imported.
    - Then shippers will be unwilling to move the wheat unless the price difference between the two markets is at least $2.
  - For large countries, the increase in the domestic Home price is less than the tariff, because part of the tariff is reflected in a decline in Foreign' s export price.
    - If Home is a small country and imposes a tariff, the foreign export prices are unaffected and the domestic price at Home (the importing country) rises by the full amount of the tariff.

Effects of a Tariff



Incidence of the Tariff

- In the absence of tariff, the world price of wheat (P_w) would be equalised in both countries.
- With the tariff in place, the price of wheat rises to P_T at Home and falls to P^*_T ($= P_T - t$) at Foreign until the price difference is $\$t$.
  - In Home: producers supply more and consumers demand less due to the higher price, so that fewer imports are demanded.
  - In Foreign: producers supply less and consumers demand more due to the lower price, so that fewer exports are supplied.
  - Thus, the volume of wheat traded declines due to the imposition of the tariff.

Incidence of the Tariff

- If the supply of exports were flatter (more elastic), more of the tax burden would be borne by the domestic consumer and less by the foreign producer.
- The flatter (or more elastic) demand, the more the tariff is paid by the foreign producer rather than by the home consumer.

Import Quota: A Form of NTB

- Like tariff, quota restriction causes price to rise.

Tariffs and World Welfare

- Impacts on world output
  - Tariff raises relative price in home country and produces a difference in the slopes of the two countries' PPC.
  - World output is below the free-trade level.
- World consumption losses
  - Tariff pulls consumption off the contract curve.

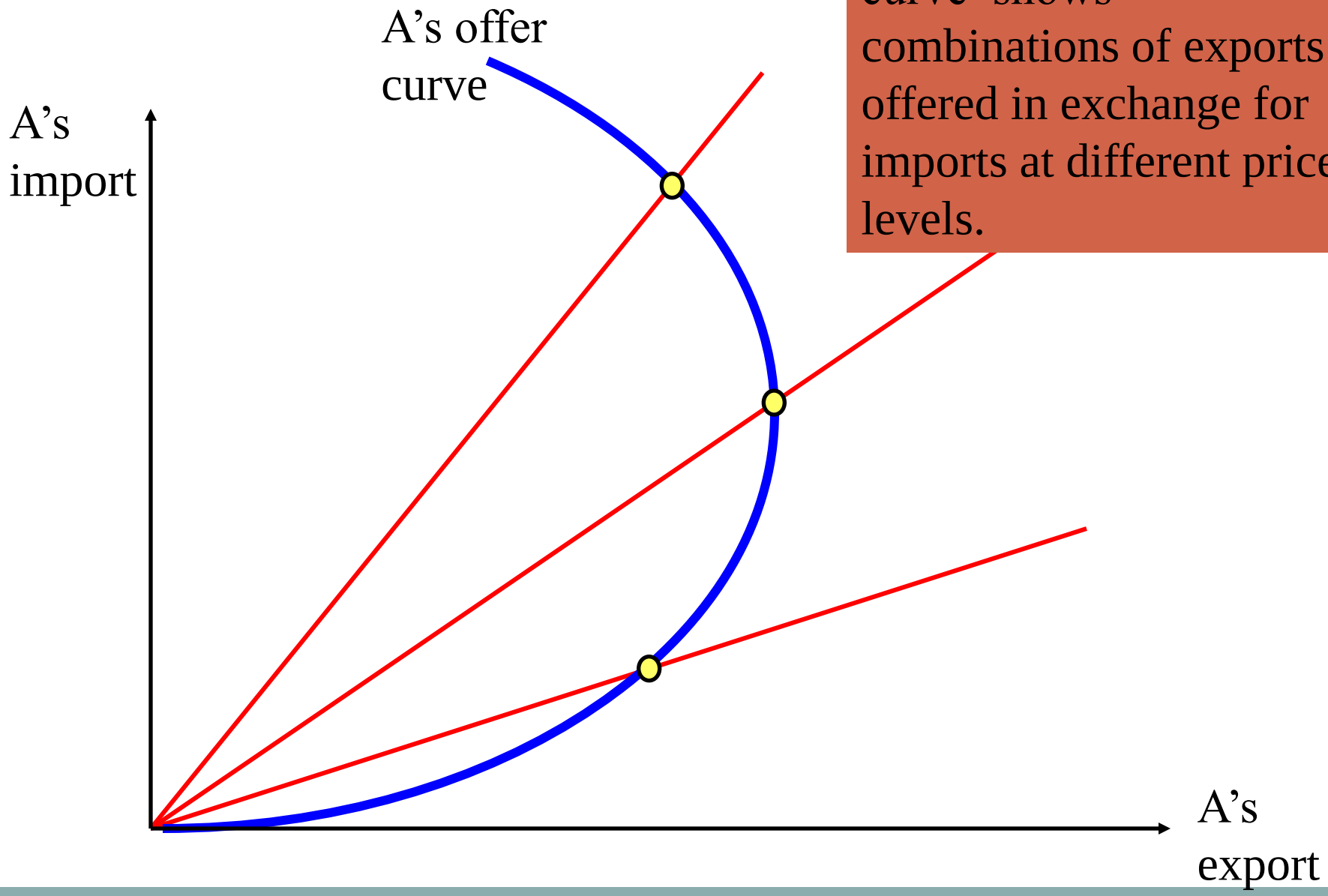
Tariffs and World Welfare

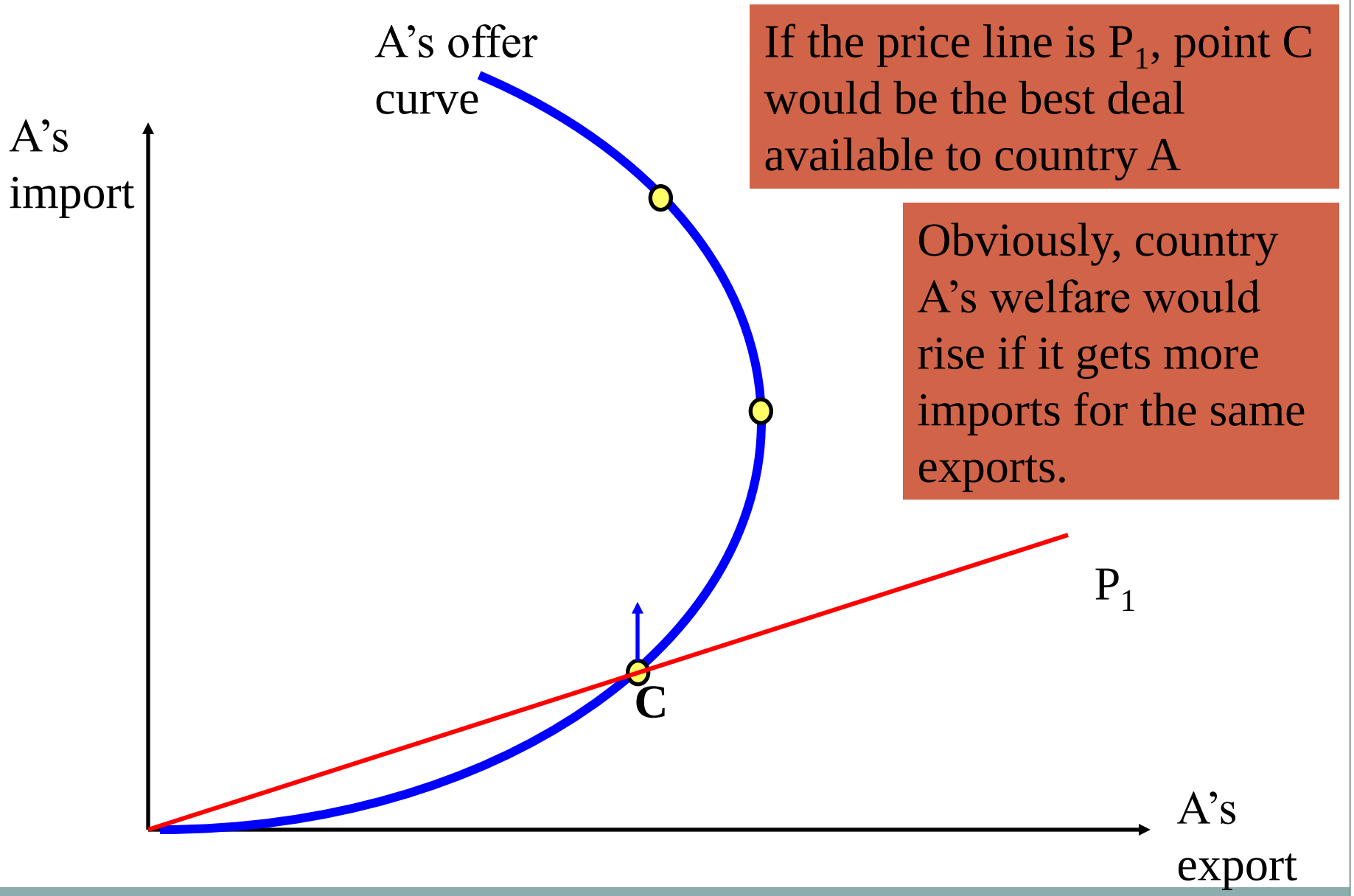
- Tariffs may not prevent.
  - A tariff may fail to protect the home import-competing industry by improving TOT so much that relative domestic price of imported good declines.
- Possibility of retaliation.
  - Gains at cost of partner (beggar-my-neighbour).
  - Retaliation results in further reduction in world welfare.

The Optimal Tariff

- The rate that maximises the country's welfare.
- It is the rate at which the positive difference between the gain from better prices and the loss from reduced quantity of imports is at a maximum.
  - If the tariff rate > the optimal one, then welfare is below the maximum.

Recall that an ‘offer curve’ shows combinations of exports offered in exchange for imports at different price levels.

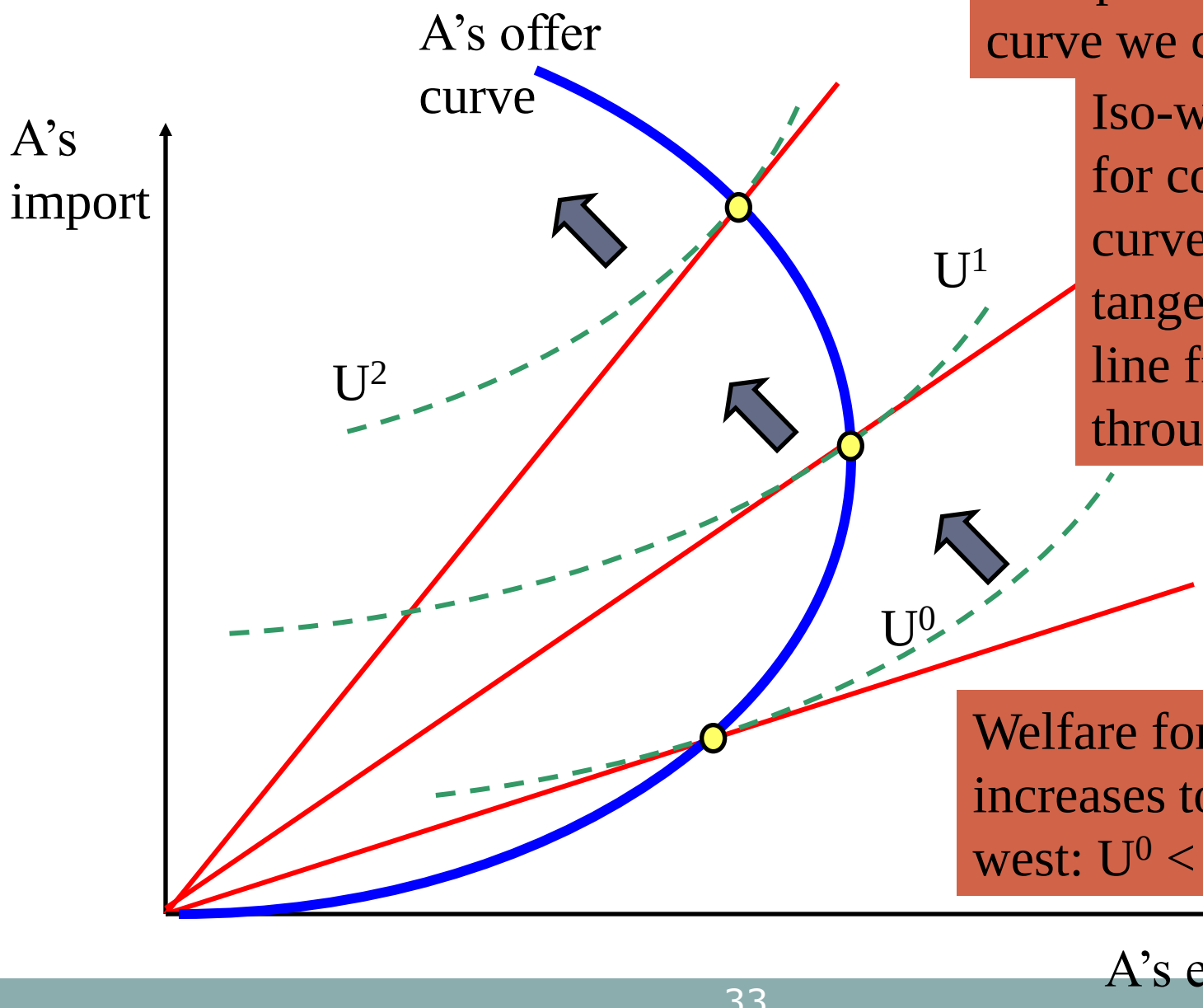




If the price line is P_1, point C would be the best deal available to country A

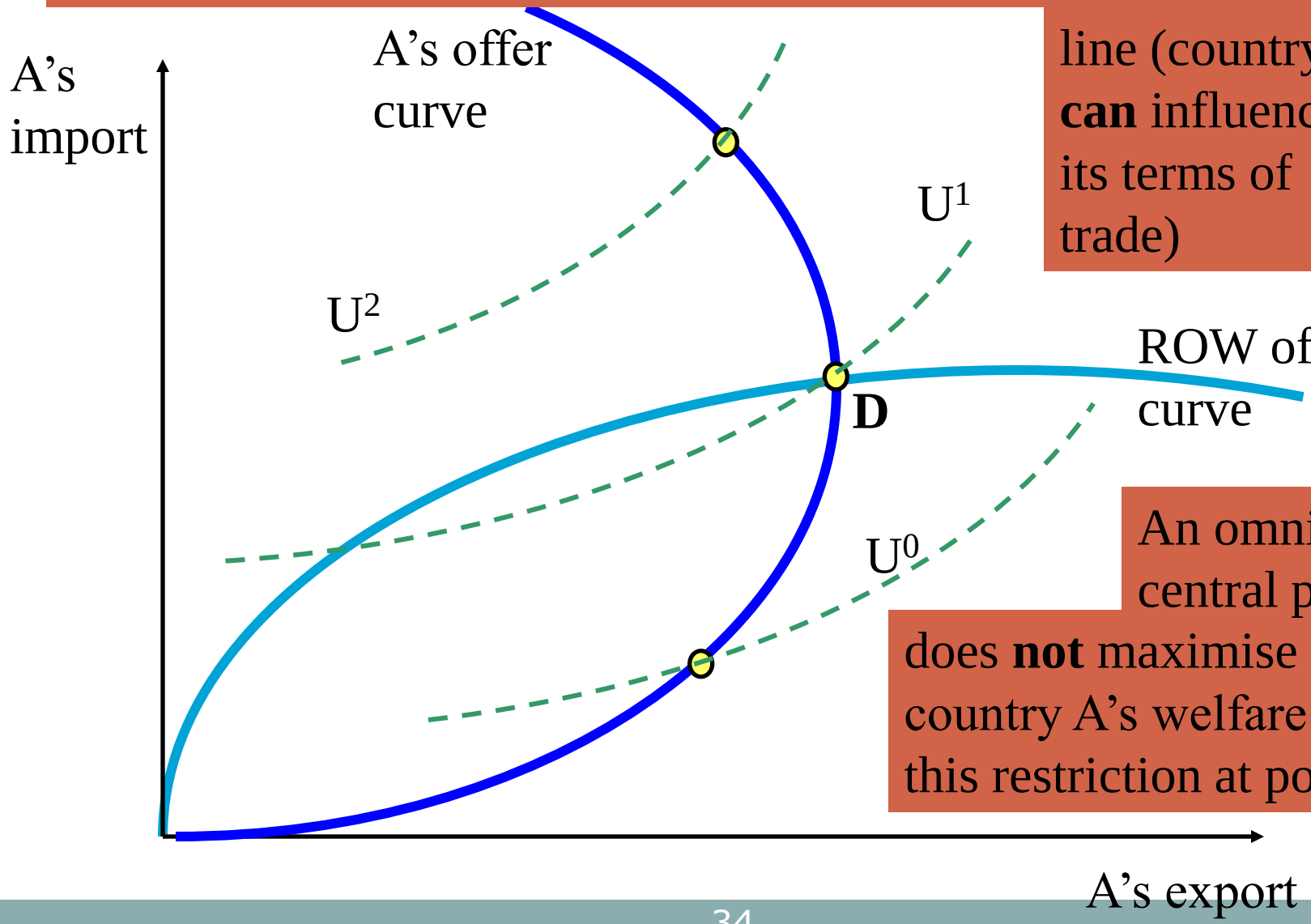
Obviously, country A's welfare would rise if it gets more imports for the same exports.

This implies that through each point on the offer curve we can draw an Iso-welfare curve for country A. This curve must be tangent to the price line from the origin through that point.

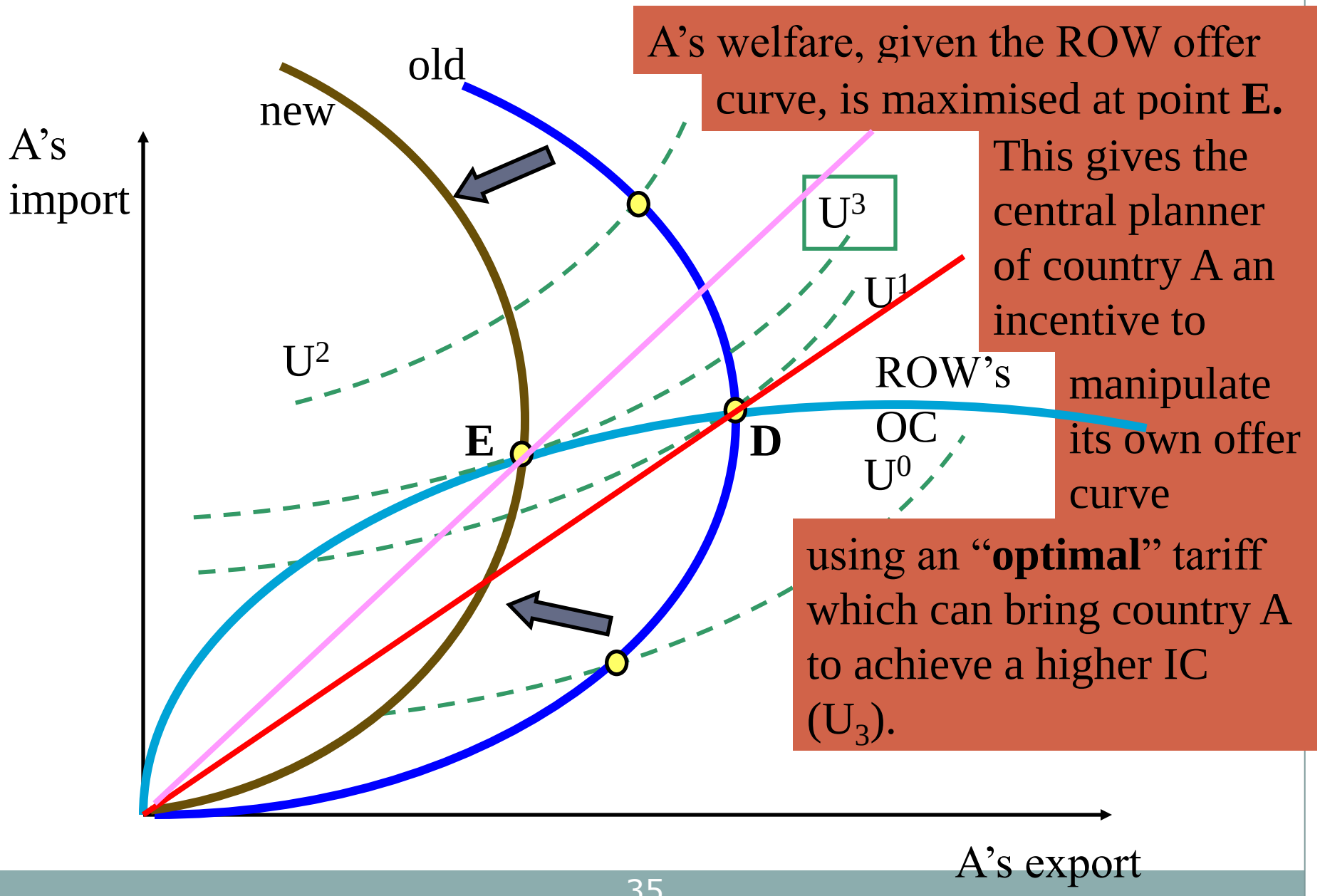


Welfare for country A increases to the north-west: $U^0 < U^1 < U^2$

If A is a large country, the ROW offer curve is not a straight line (country A **can** influence its terms of trade)

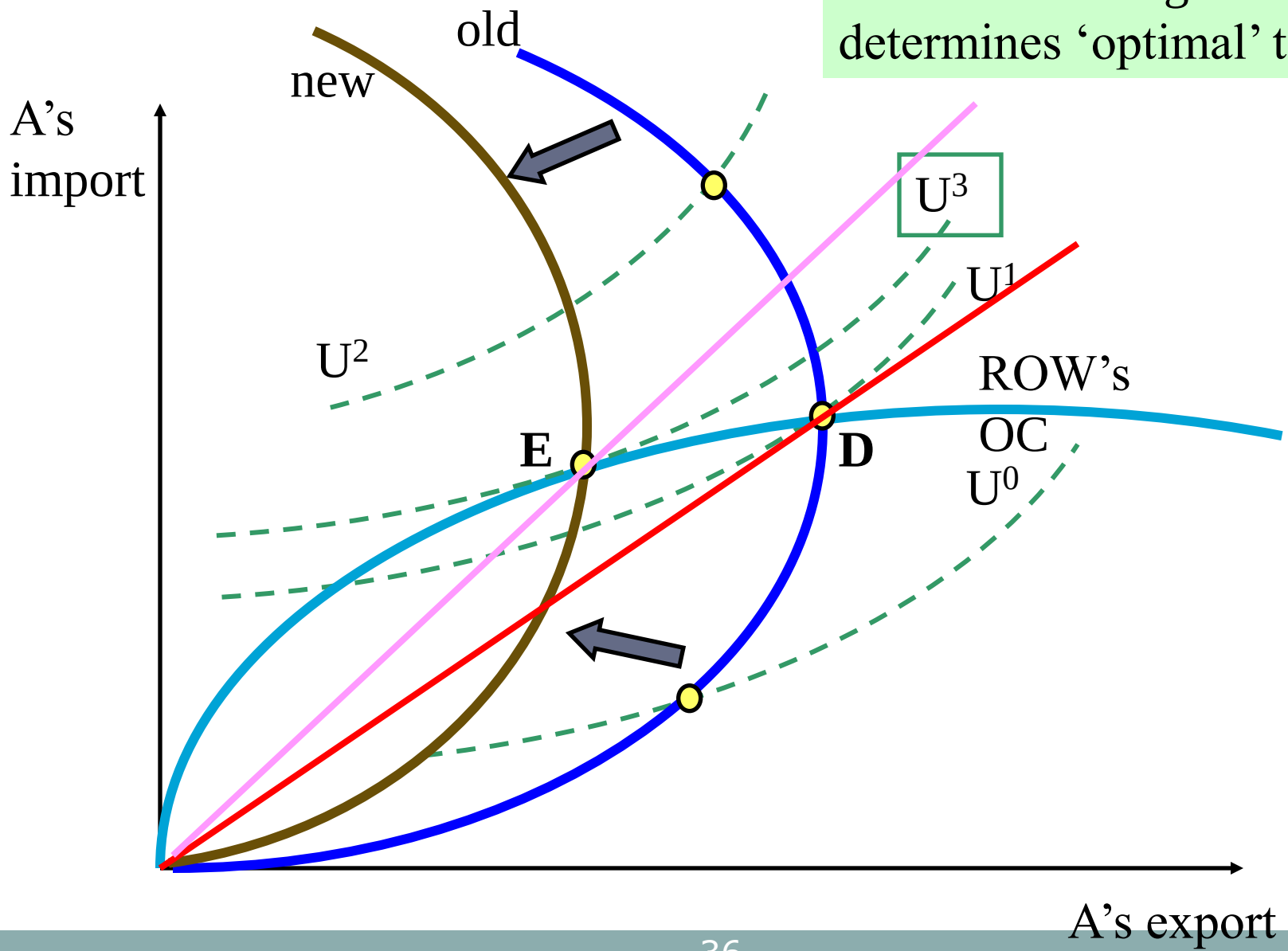


An omniscient central planner does **not** maximise country A's welfare given this restriction at point **D**



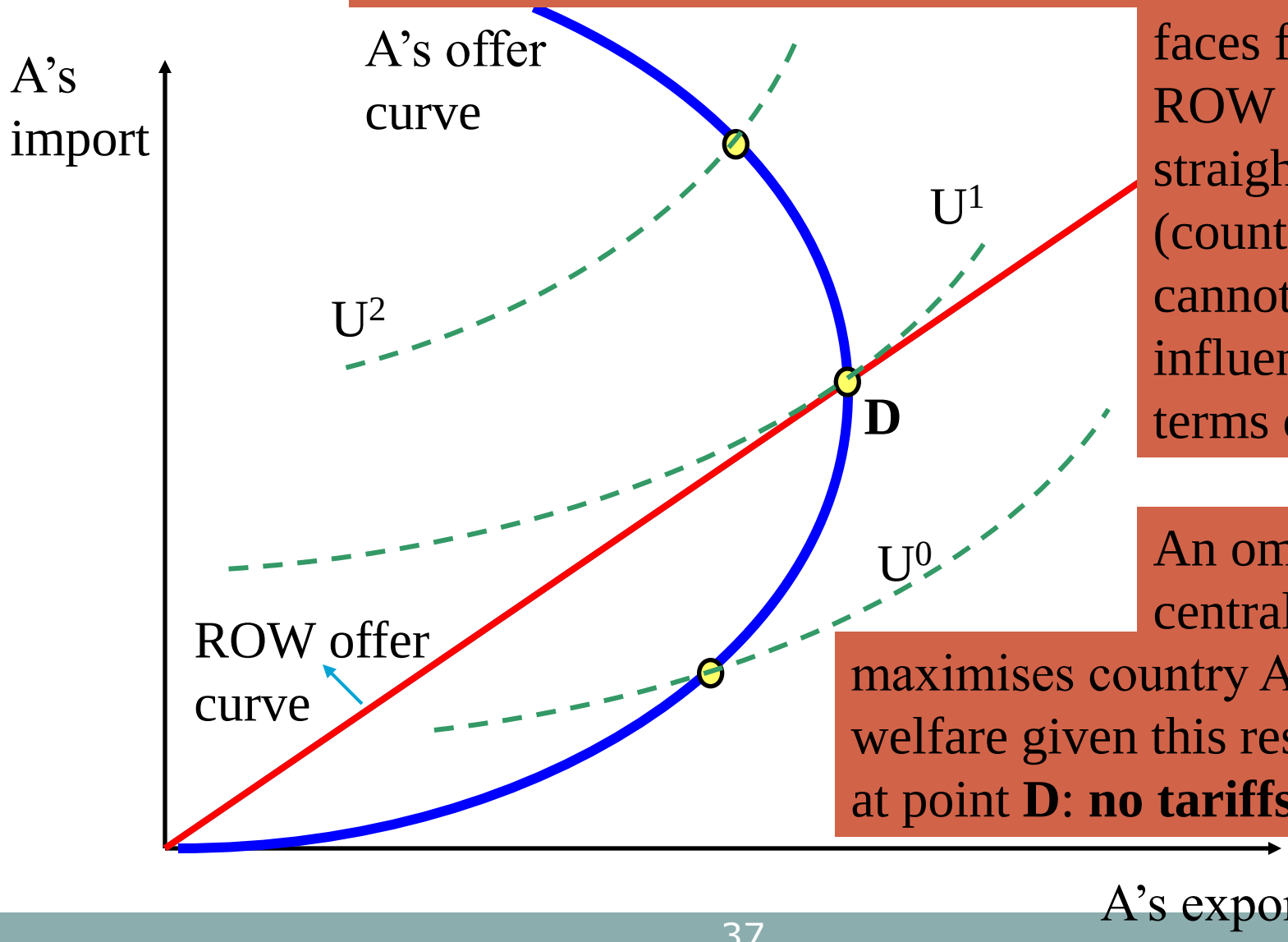
A's welfare, given the ROW offer curve, is maximised at point **E.** This gives the central planner of country A an incentive to manipulate its own offer curve using an "**optimal**" tariff which can bring country A to achieve a higher IC (U_3).

Tangency of trade indifference curve with foreign offer curve determines ‘optimal’ tariff



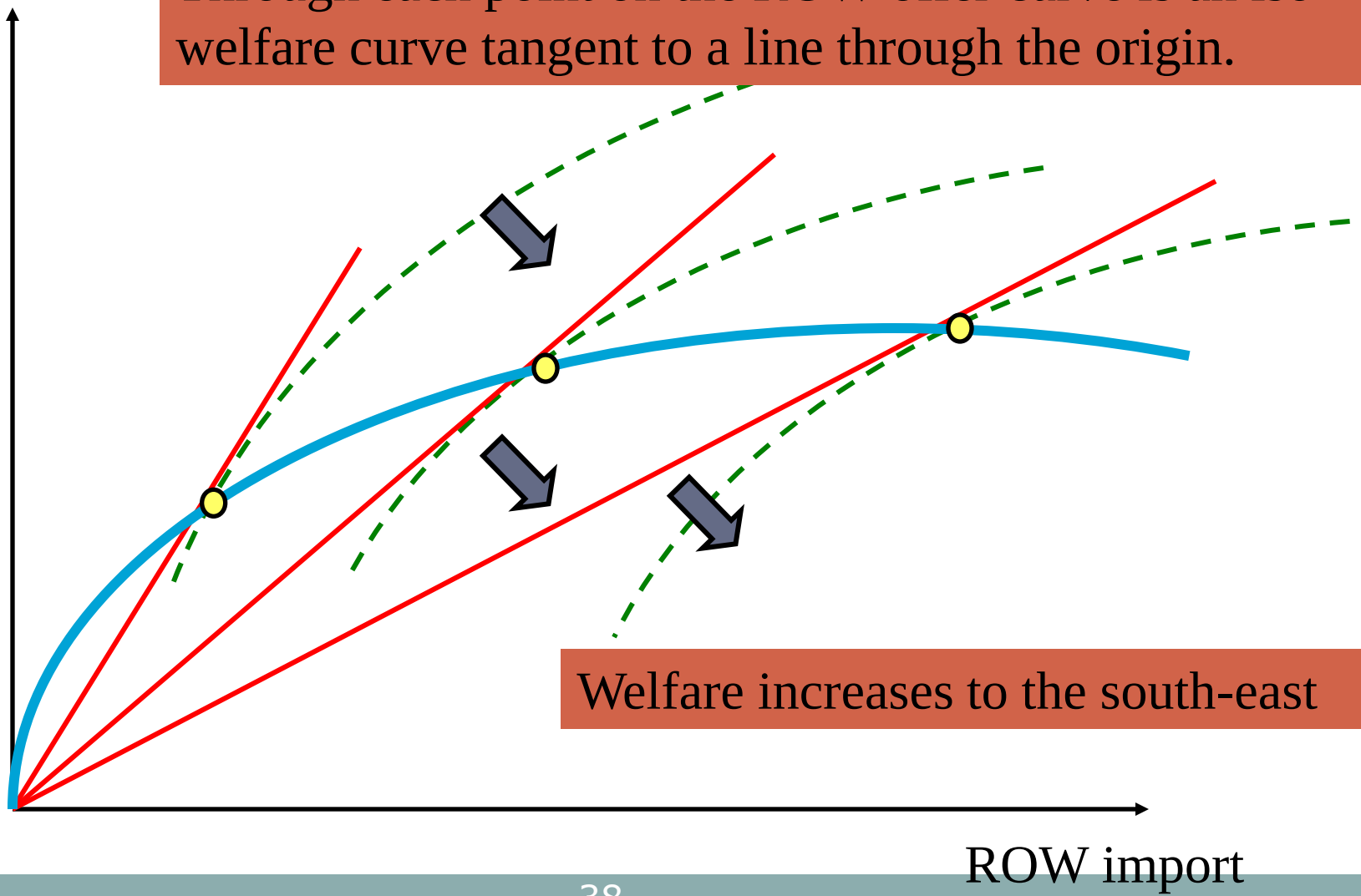
Note for a small country

If country A is a small country, the offer curve it faces from the ROW is a straight line (country A cannot influence its terms of trade).



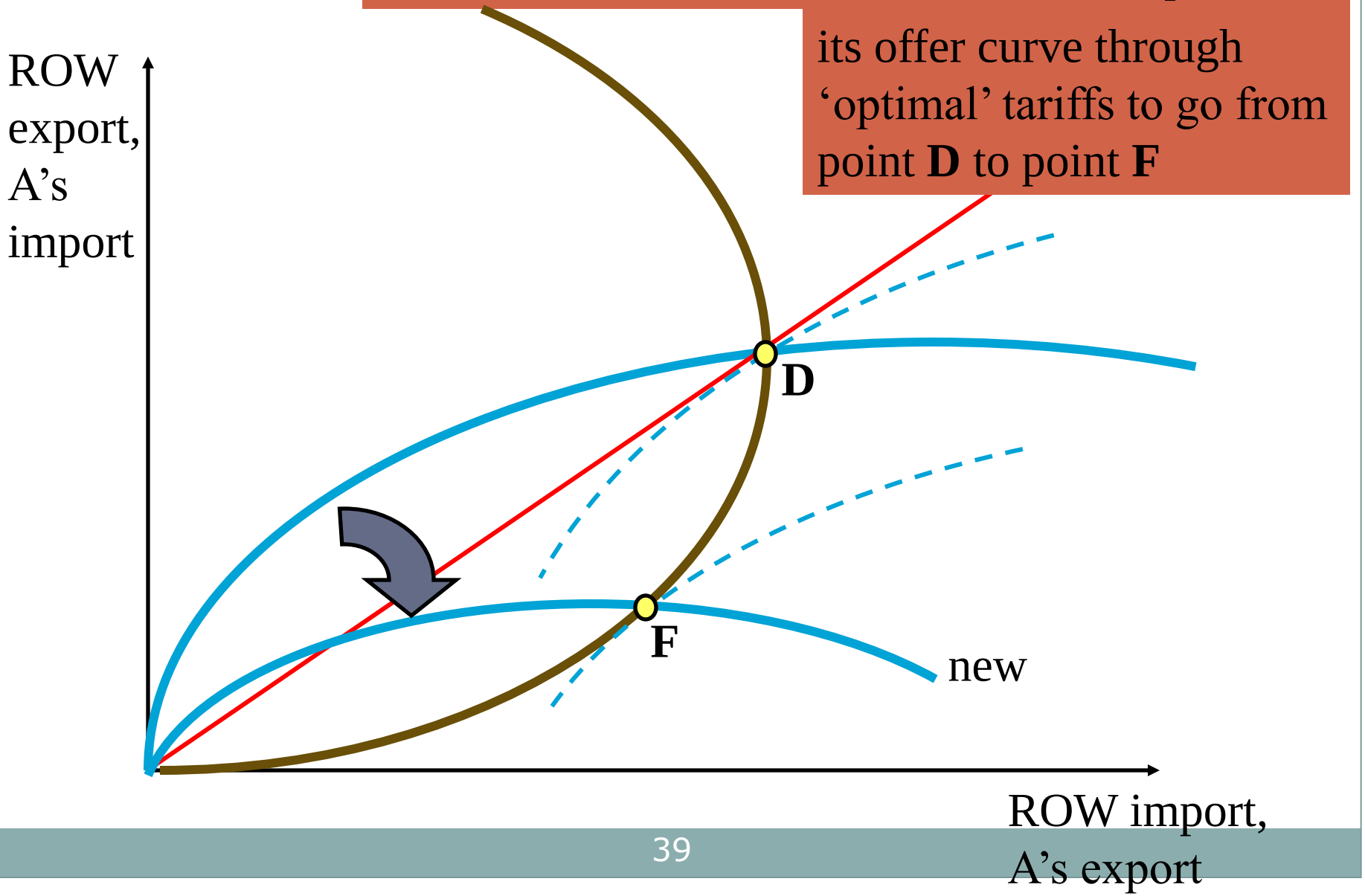
An omniscient central planner maximises country A's welfare given this restriction at point **D**: **no tariffs**

For ROW, however, the situation is reverse
Through each point on the ROW offer curve is an iso-welfare curve tangent to a line through the origin.

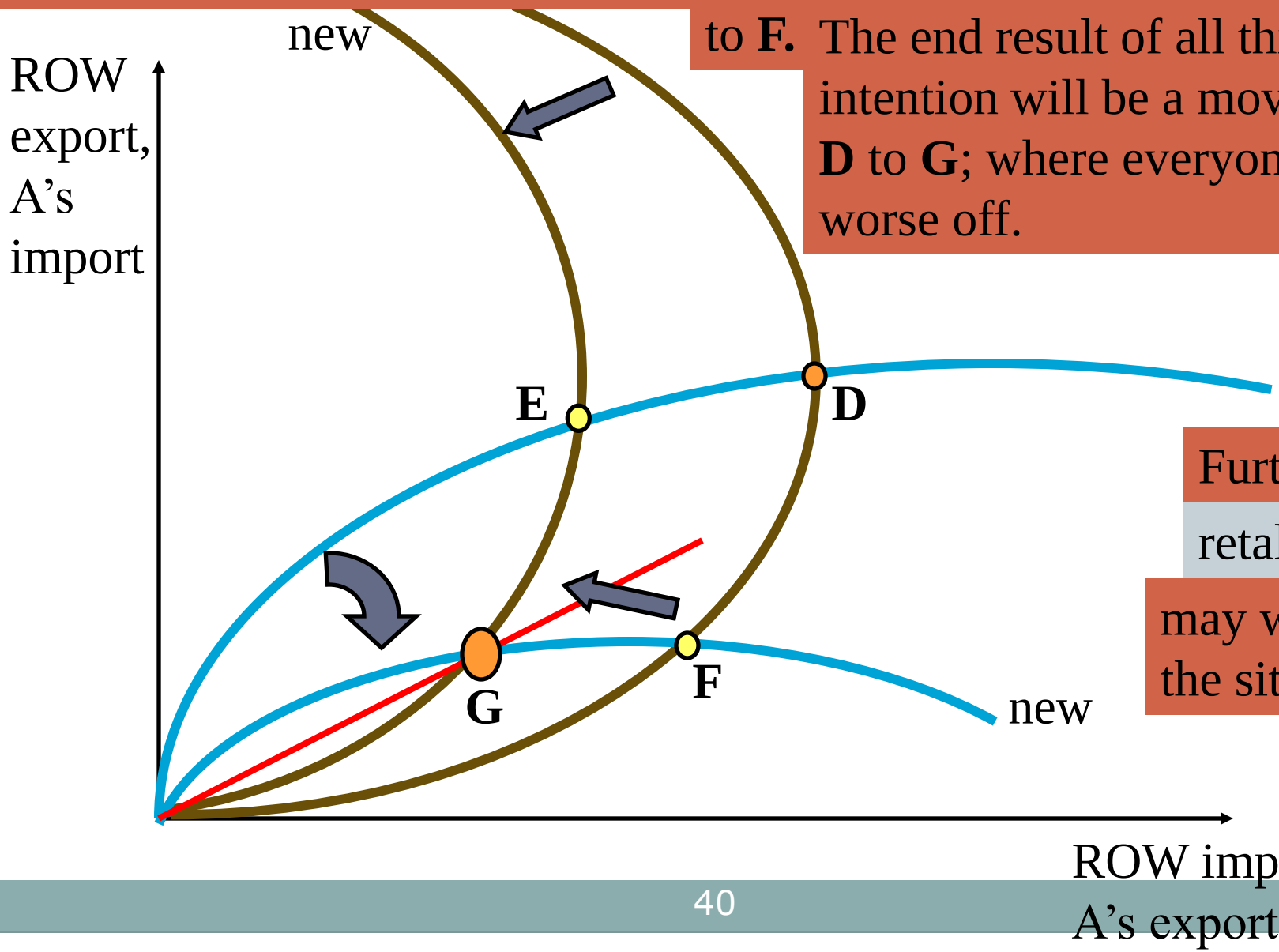


Welfare increases to the south-east

ROW, therefore, has an incentive to manipulate its offer curve through 'optimal' tariffs to go from point **D** to point **F**



If A wants to move from **D** to **E,** while ROW wants to move from **D** to **F.** The end result of all this intention will be a move from **D** to **G**; where everyone is worse off.



Further retaliation may worsen the situation

The Optimal Tariff: A Technical Note

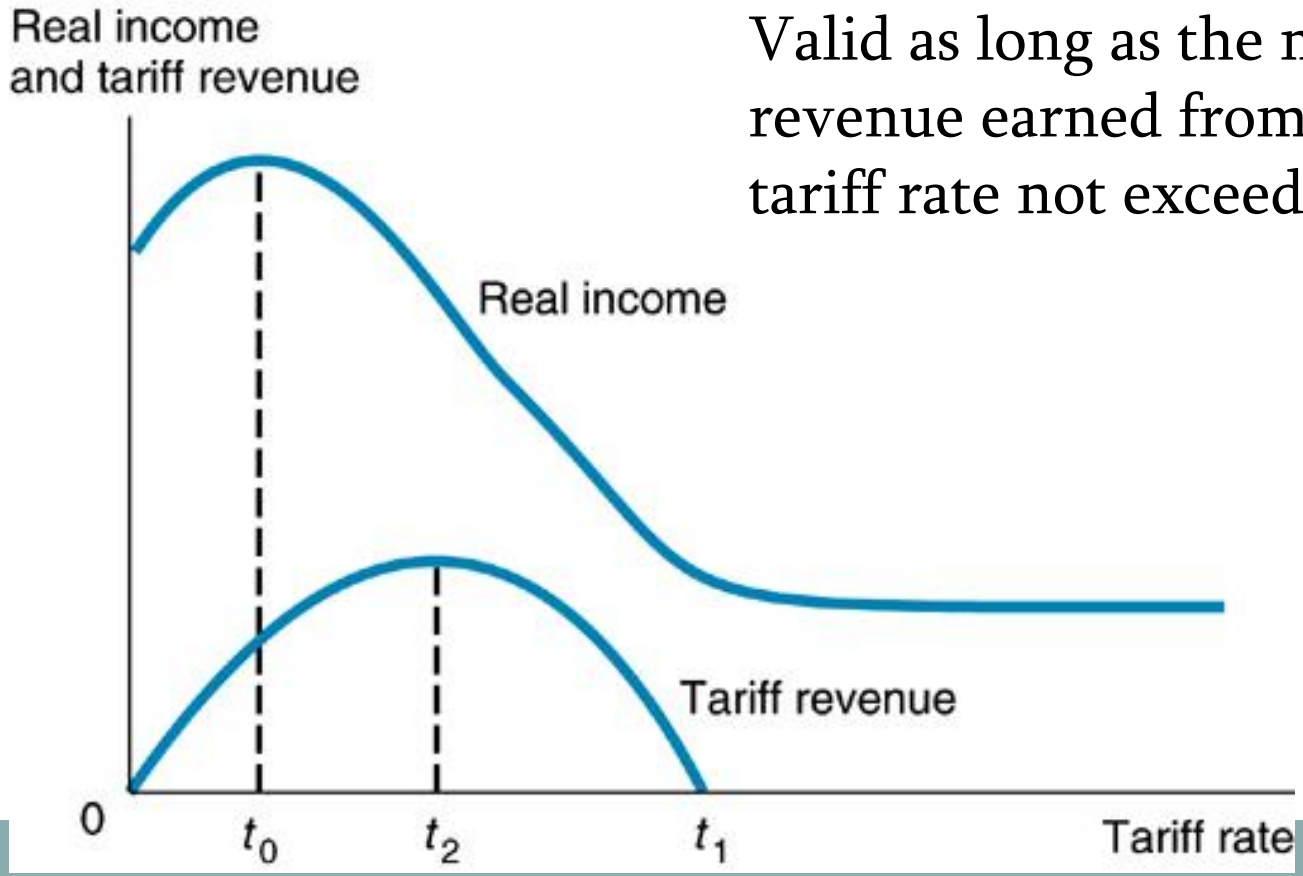
$$\left.\begin{aligned} p_B &= \left(1-\frac{1}{\varepsilon_B^d}\right) = p_A \\ p_B &= (1+t_A)p_A \end{aligned}\right\} \Rightarrow t_A^* = \frac{1}{\varepsilon_B^d - 1}$$

Limitation: Extremely difficult to calculate.

A recognition of optimal tariff (t*) implies that TOT improvement does not necessarily mean that welfare will improve for the tariff-imposing country.

Tariff as a Device for Raising Revenue

- Any tariff that is not so high as to be prohibitive, like t_1, is a source of revenue.



Valid as long as the max revenue earned from a tariff rate not exceeding t^*

Political Economy of Protection

- Tariff as a source of government revenue
- National defense argument
  - Potato in EU
- Tariff to improve the balance of trade
  - Other policies would also do.
- Tariff to improve terms of trade
  - The question of optimal tariff
- Tariff to reduce aggregate unemployment
  - Shift in production → hire more resources in importing industry; but loss in labour in exporting industry which would be further reduced if partners do retaliation. Export goods will drop, less jobs → ER affected
  - Specificity principle: Specific policies would do

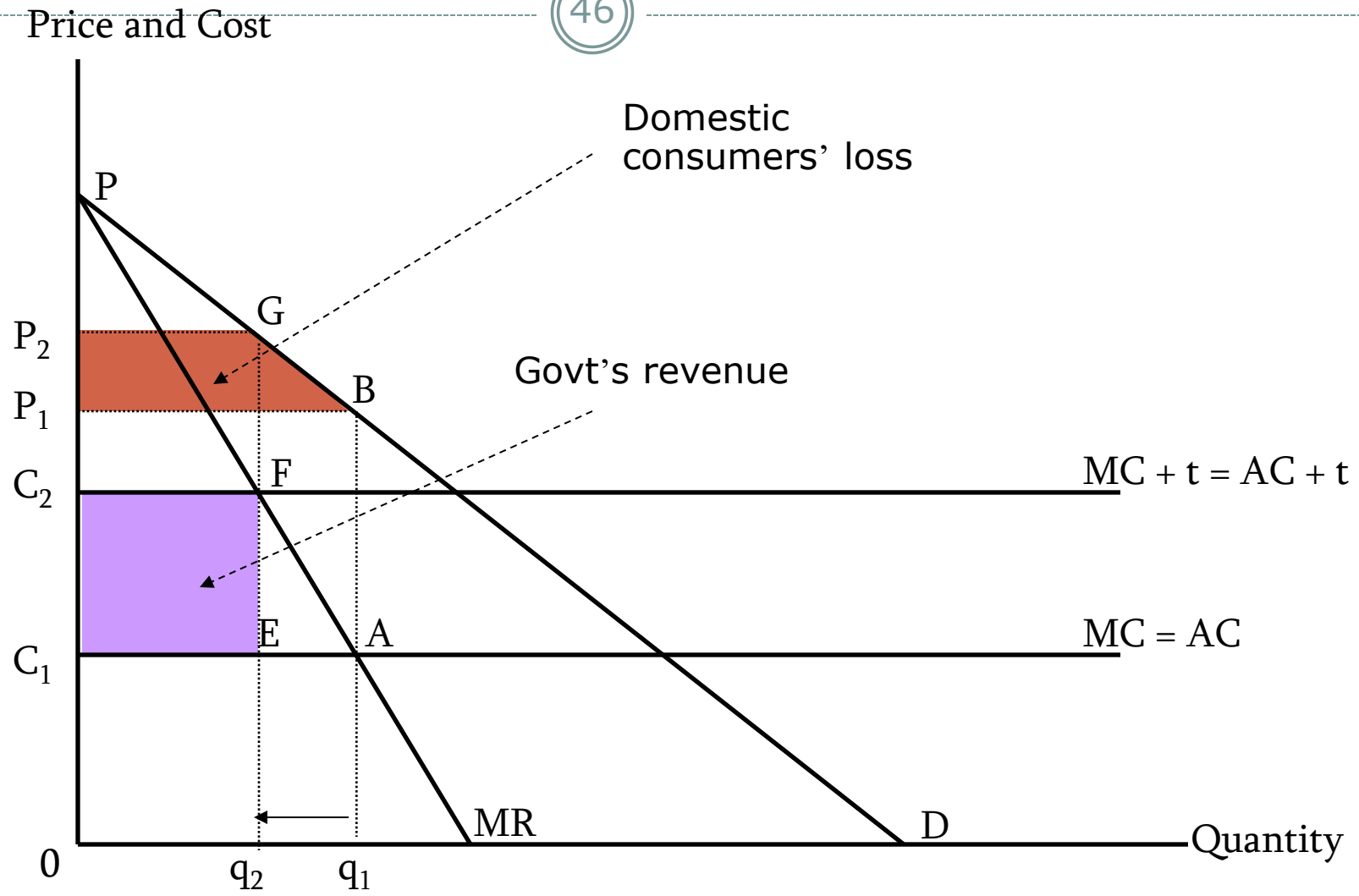
Political Economy of Protection

- Tariff to increase employment in a particular industry
  - Question of efficiency
- Tariff to benefit a scarce factor of production
  - What if there is no flexibility in resource movement?
- Tariff to correct domestic market failures, such as externalities and monopoly
- Tariff to offset foreign dumping ➔ antidumping duties (AD)
- Tariff to offset foreign subsidy ➔ countervailing duties (CVD)
  - Too large subsidy can distort CA and injure trading partners.
  - Normally applied when injury occurs

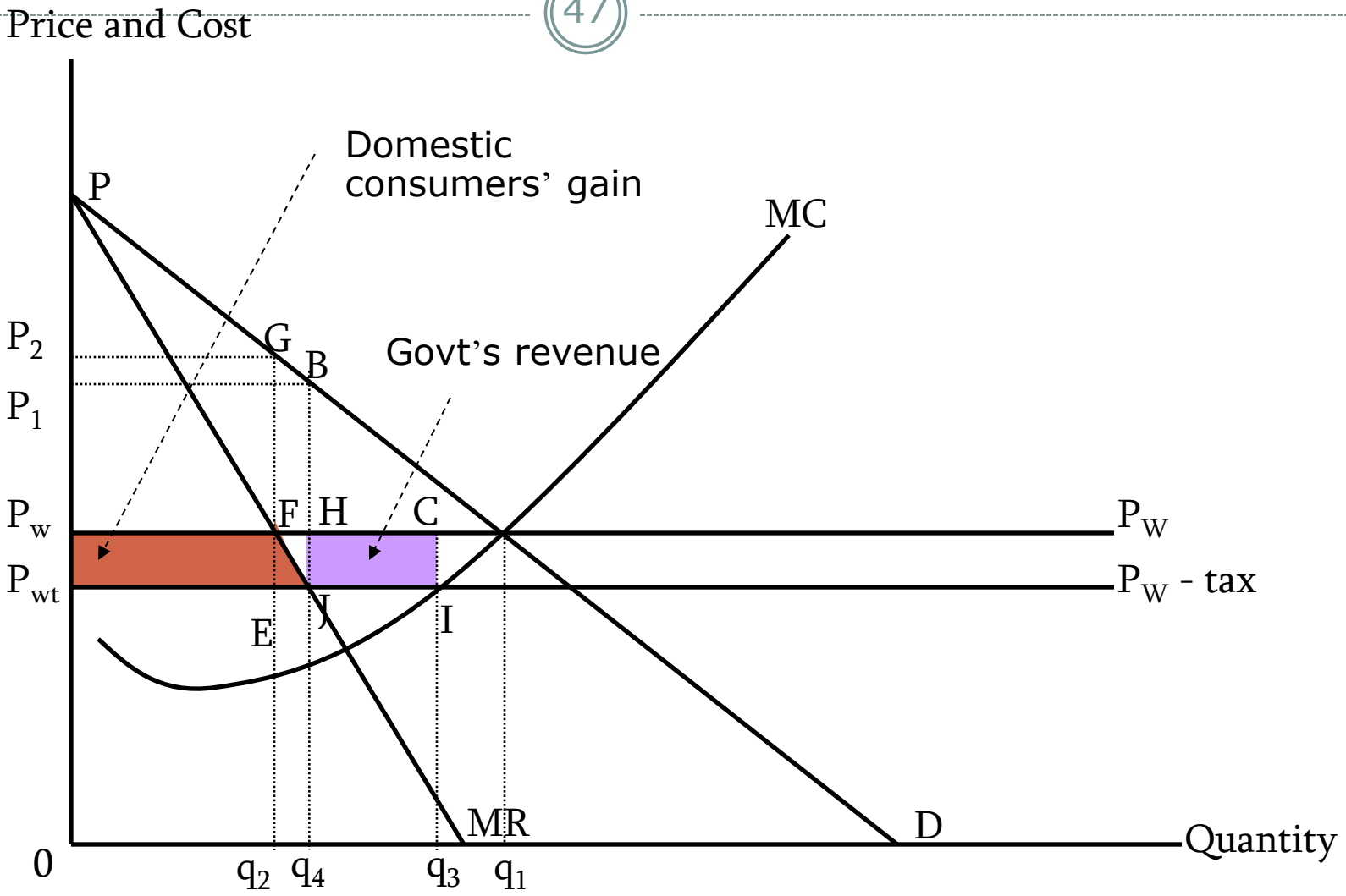
Dumping

- Simply a form of price discrimination ➔ a firm selling the same product in different markets at different prices
- Selling its product at a lower price in the export market than in the home country market.
- Three types:
  - Persistent dumping: price in the importing country is lower than in the home country.
  - Predatory dumping: price is so low that can drive the home producers out of the market. Then price is raised due to monopoly power established.
  - Sporadic dumping: foreign producer with a temporary surplus exports such the excess exported goods. This type would produce temporary adverse effects by adding uncertainty to the home industry.

Tariff to Extract Foreign Monopoly Profit



Export Tax to Extract Profit from a Domestic Monopoly



Cons

- Tariffs, the distribution of incomes and rent-seeking activities
- The infant industry argument
- Growth, protection and welfare
- Income distribution and domestic saving

Import Quota

- Every quota has an equivalent tariff that produces the same market result.
- However, the welfare implications are not the same.
- No government revenue generated.
- The difference between the international price and domestic price of the import good is an economic quota RENT, which may accrue to
  - The domestic importer/retailer,
  - Or the foreign supplier/ foreign government,
  - Or the home government,
  - Or may be distributed among the three.

Import Quota

- All in all, import quota is worse than tariff
  - DWL + administrative costs.

Subsidy to an import-competing industry

- with an equivalent subsidy, producers are equally as well off as when the tariff was in place.
- However, the welfare effect is different.
  - No loss of consumer surplus.
  - Producers receive subsidy transfer.
  - But the burden of the policy falls on the taxpayers.

Trade Policies Imposed on Exports

- Export Taxes
  - Levied only on home-produced goods that are destined for export and not for domestic consumption
- Export Subsidies
  - Negative export taxes
- All in all, they
  - Interfere market mechanism
  - Distort the pattern of trade from that of CA.
  - Reduce world welfare.

Export Taxes

Export Quota

Export Subsidies

- **Export subsidy**
  - A payment by the government to a firm or individual that ships a good abroad.
  - When the government offers an export subsidy, shippers will export the good up to the point where the domestic price exceeds the foreign price by the amount of the subsidy
  - It can be either specific or ad valorem

Export Subsidies

- An export subsidy raises prices in the exporting country while lowering them in the importing country.
- In addition, and in contrast to a tariff, the export subsidy worsens the terms of trade.
- An export subsidy unambiguously leads to costs that exceed its benefits.