

# The Economics of European Integration

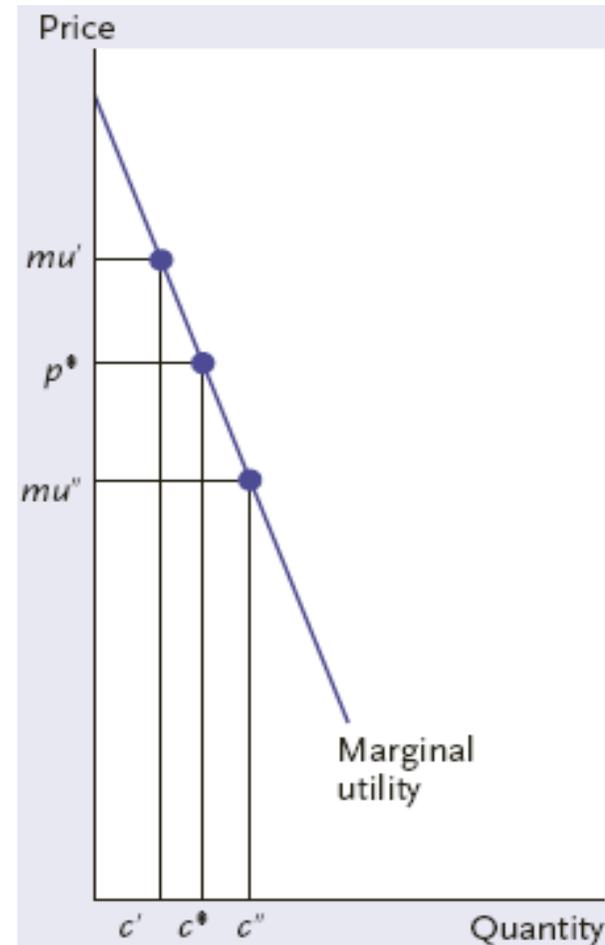
- Demand
  - Supply
  - Welfare
  - Open economy
  - Tariff analysis
- 

## Chapter 4

### Essential Micro Tools

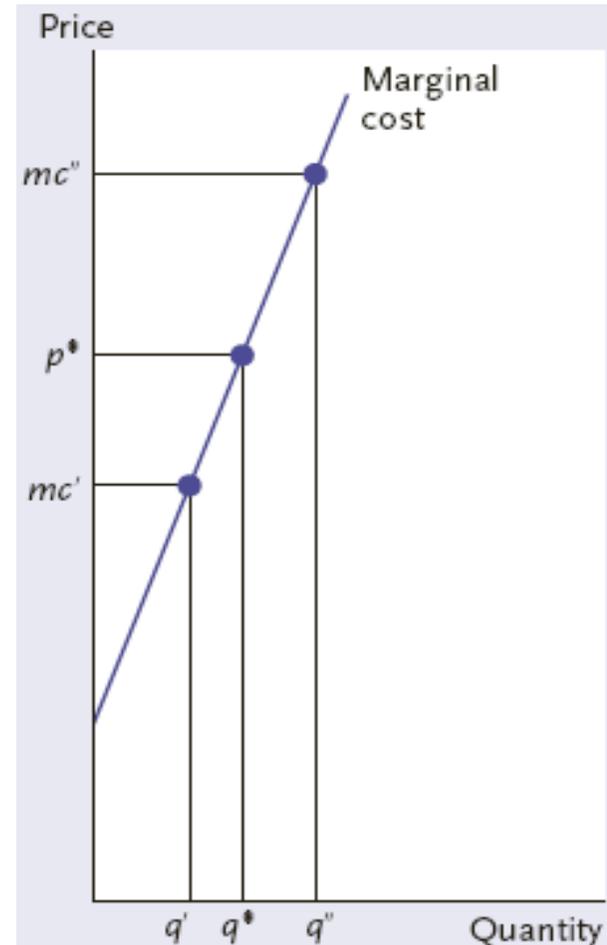
# Preliminaries I - demand

- Demand curve shows how much consumers would buy of a particular good at any particular price.
- It is based on optimization exercise:
  - would one more be worth price?
- Market demand is aggregated over all consumers' demand curves
  - horizontal sum.



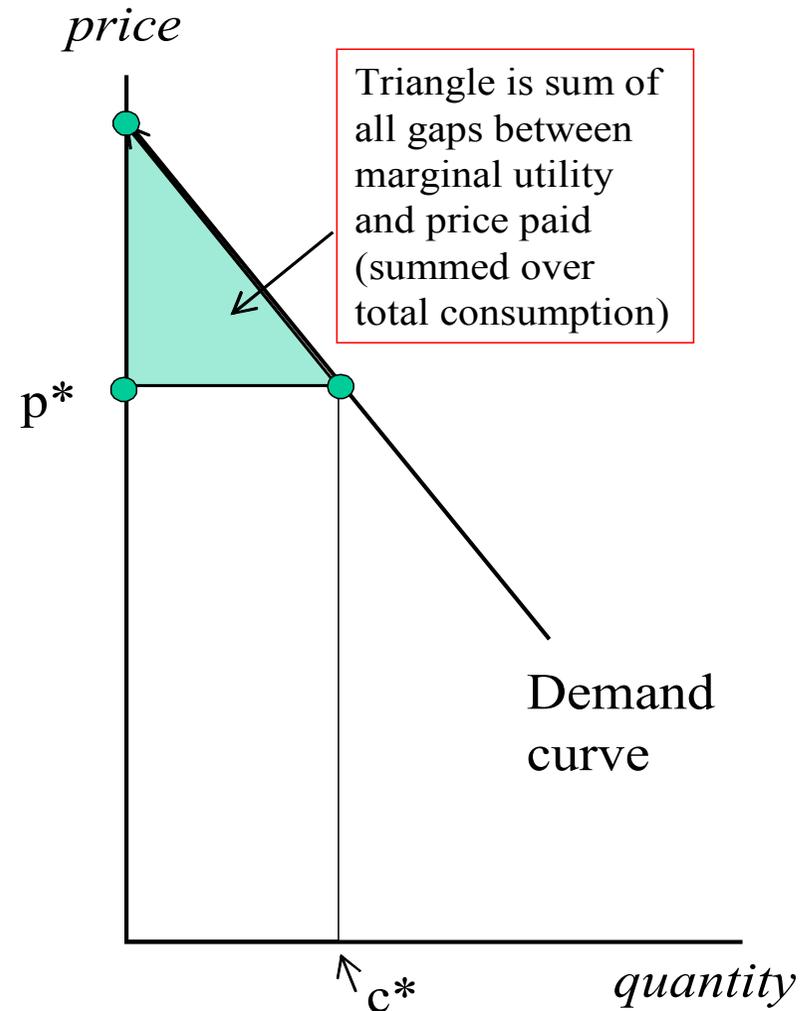
# Preliminaries I - supply

- Supply curve shows how much firms would offer to the market at a given price.
- Based on optimisation:
  - would selling one more unit at price increase profit?
- Market supply is aggregated over all firms
  - horizontal sum.



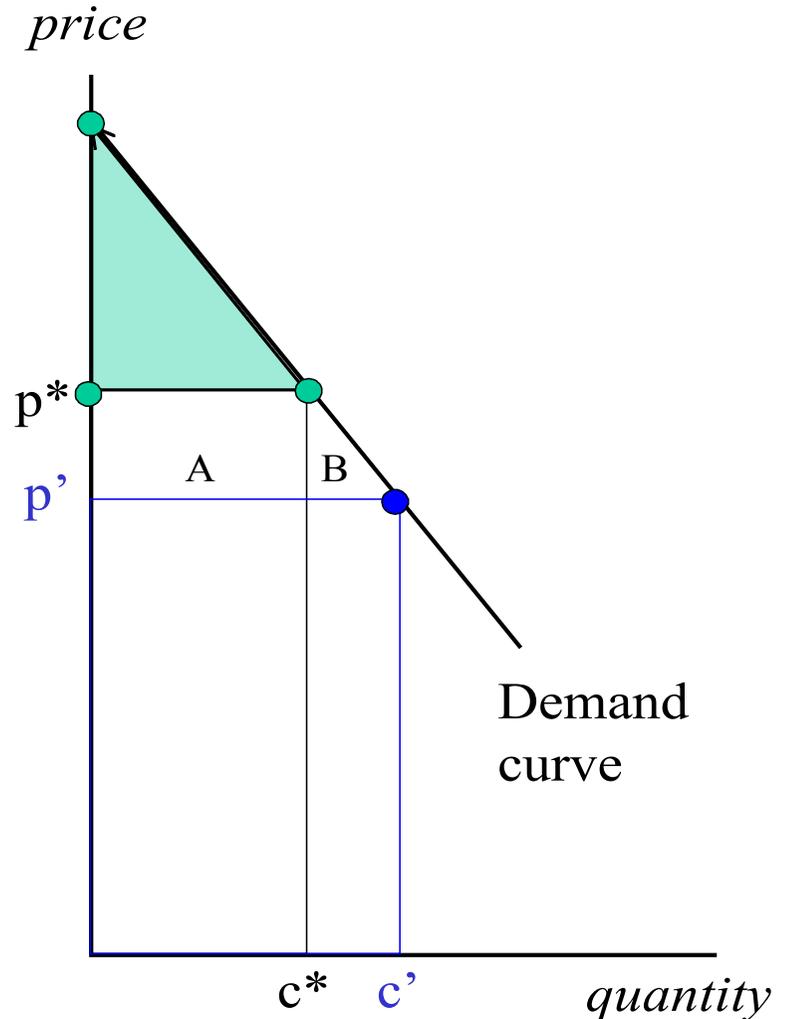
# Welfare Analysis: Consumer Surplus

- Since demand curve is based on marginal utility, it can be used to show how consumers' well-being (welfare) is affected by changes in the price.
- Gap between marginal utility of a unit and price paid shows 'surplus' from being able to buy  $c^*$  at  $p^*$ .



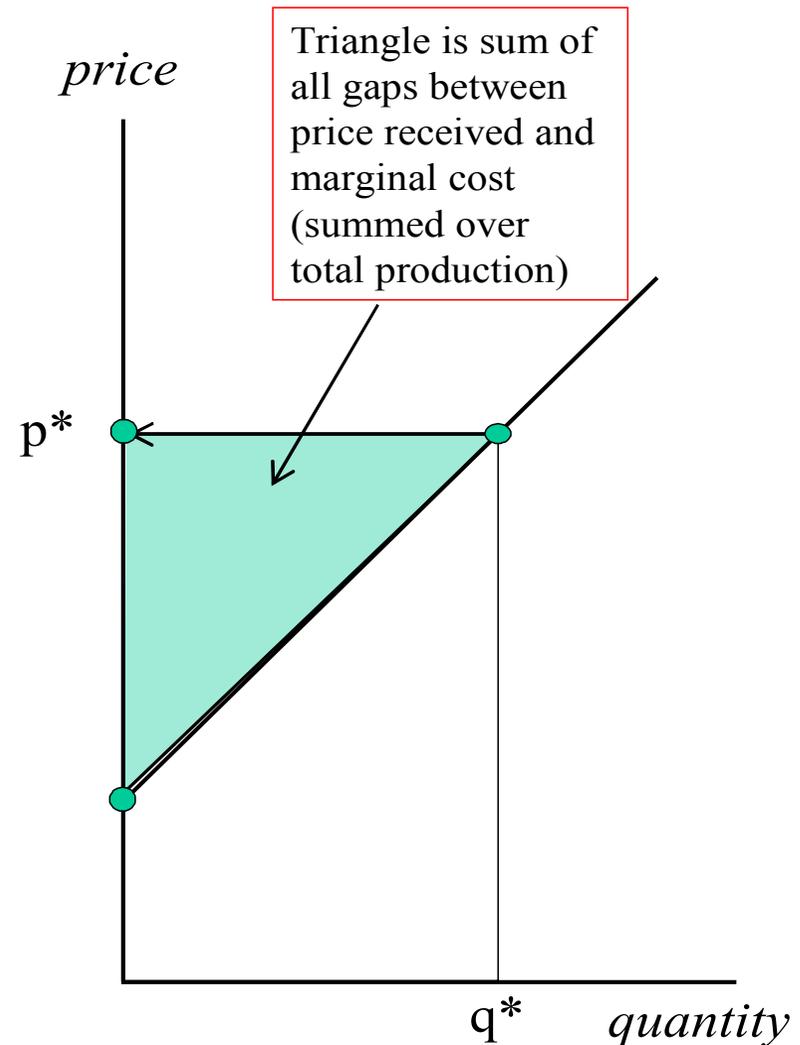
# Welfare Analysis: Consumer Surplus

- If the price falls:
  - consumers obviously better off
  - consumer surplus change quantifies this intuition.
- Consumer surplus rise, 2 parts:
  - pay less for units consumed at old price; measure of this = area A:
    - $A = \text{price drop times old consumption}$
  - gain surplus on the new units consumed (those from  $c^*$  to  $c'$ ) = area B:
    - $B = \text{sum of all new gaps between marginal utility and price.}$



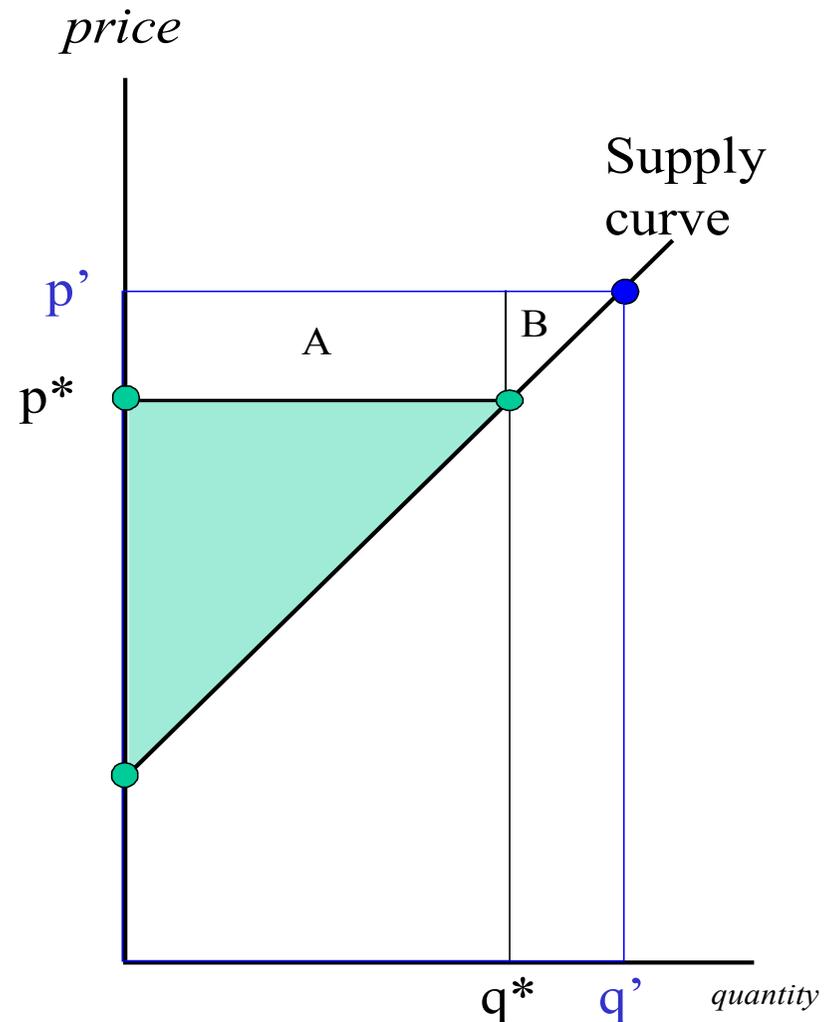
# Welfare Analysis: Producer Surplus

- Since supply curve based on marginal cost, it can be used to show how producers' well-being (welfare) is affected by changes in the price.
- Gap between marginal cost of a unit and price received shows 'surplus' from being able to sell  $q^*$  at  $p^*$ .



# Welfare Analysis: Producer Surplus

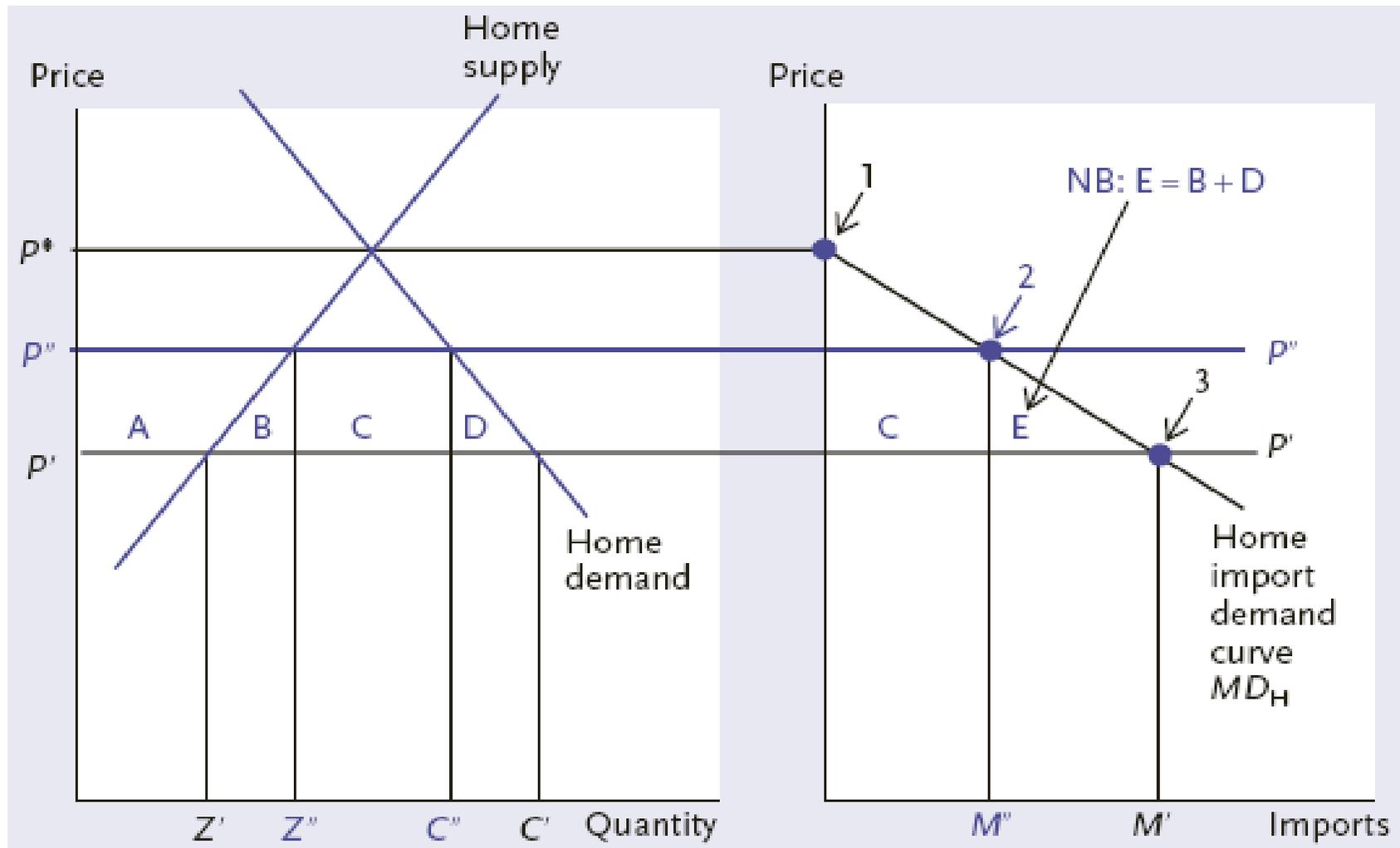
- If the price rises:
  - producers obviously better off
  - producer surplus change quantifies this intuition.
- Producer surplus rise, 2 parts:
  - get more for units sold at old price; measure of this = area A:
    - $A = \text{price rise times old production}$
  - gain surplus on the new units sold (those from  $q^*$  to  $q'$ ) = area B:
    - $B = \text{sum of all new gaps between marginal cost and price.}$



# Preliminaries II

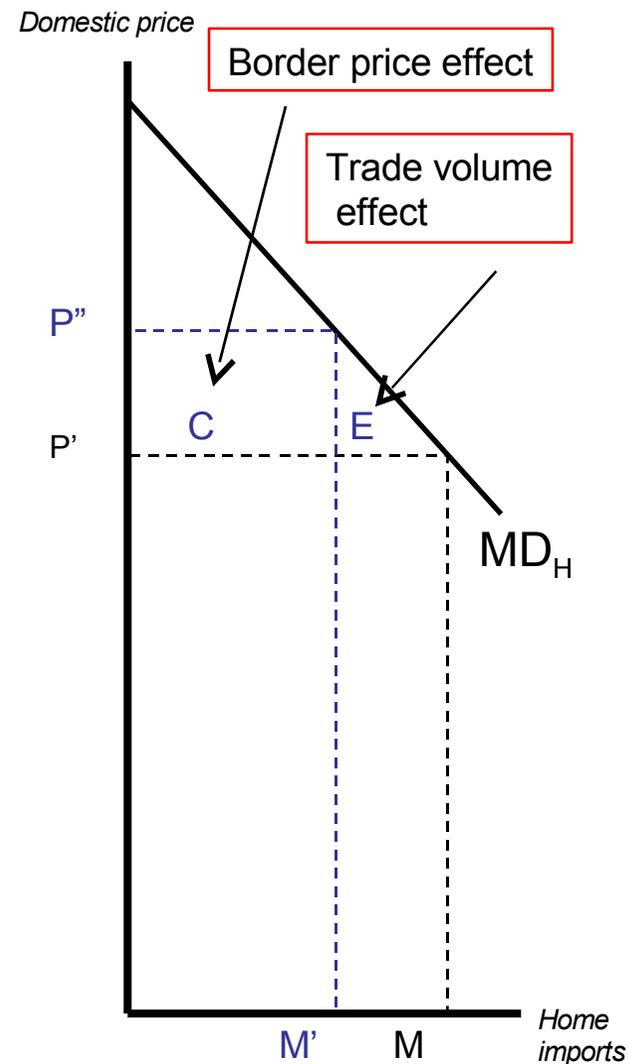
- Introduction to Open Economy Supply and Demand Analysis.
- Start with Import Demand Curve:
  - tells us how much a nation would import for any given domestic price
  - presumes imports and domestic production are perfect substitutes
  - imports equal gap between domestic consumption and domestic production.

# Import Demand Curve (MD)



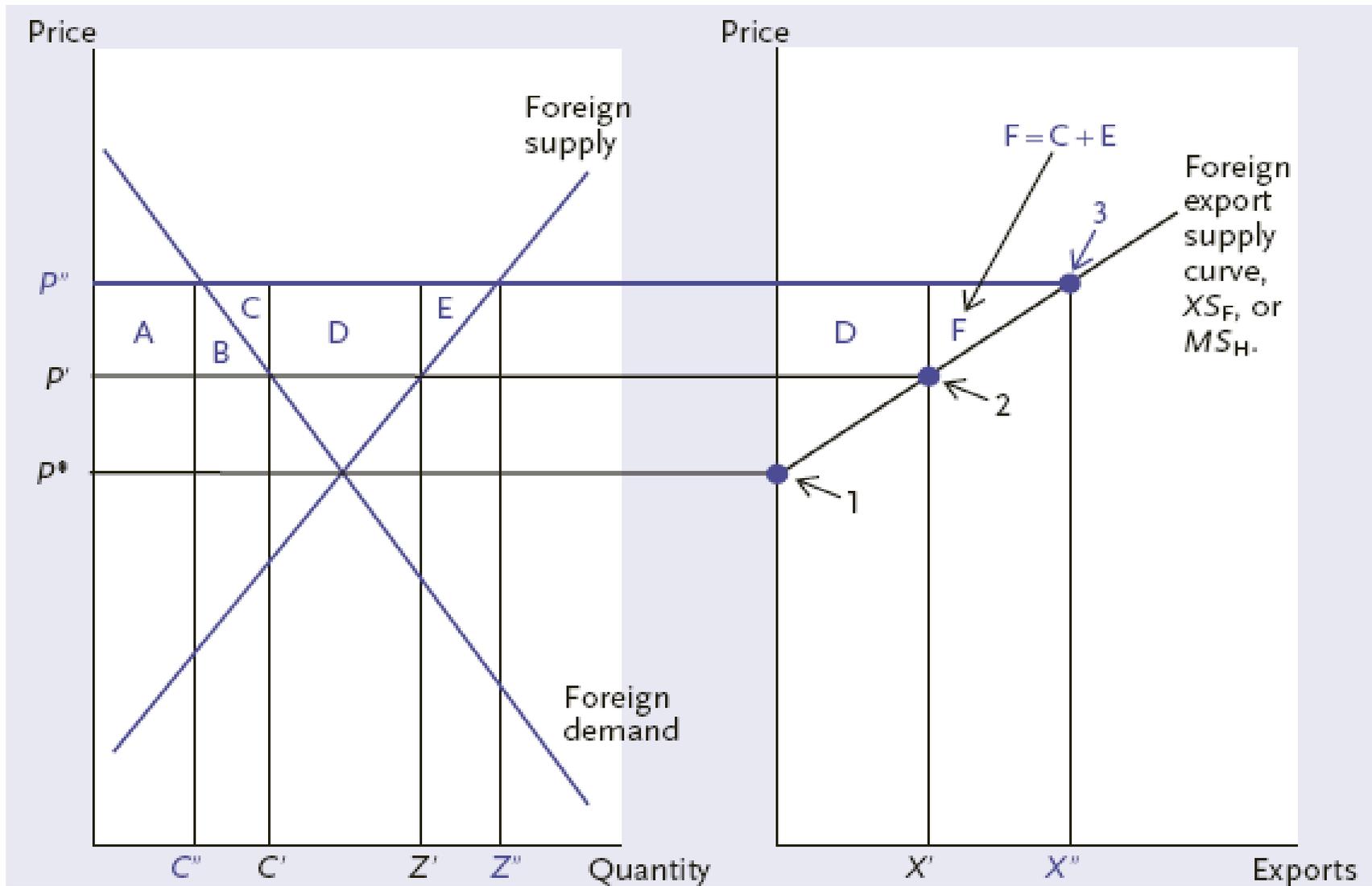
# Trade Volume Effect, Border Price Effect

- Decomposing Home loss from price rise,  $P'$  to  $P''$  :
  - area C: home pays more for units imported at the old price (‘Border price effect’).
  - Area E: home loses from importing less at  $P''$  (‘trade volume effect’).
    - marginal value of first lost unit is the height of the MD curve at  $M'$ , but Home paid  $P'$  for it before, so net loss is gap,  $P'$  to MD
    - adding up all the gaps gives area E.



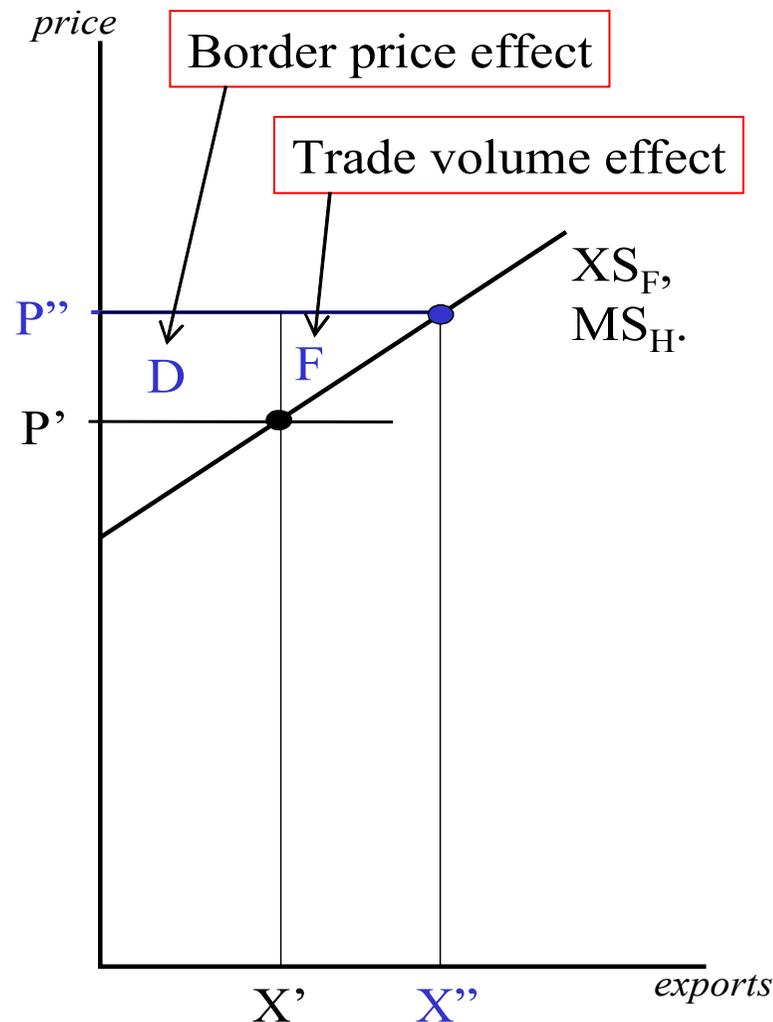
- Import Supply Curve:
  - tells us how much a nation would export for any given domestic price
  - presumes exports and domestic production are perfect substitutes
  - exports equal gap between domestic production and domestic consumption .

# Import Supply Curve (MS)

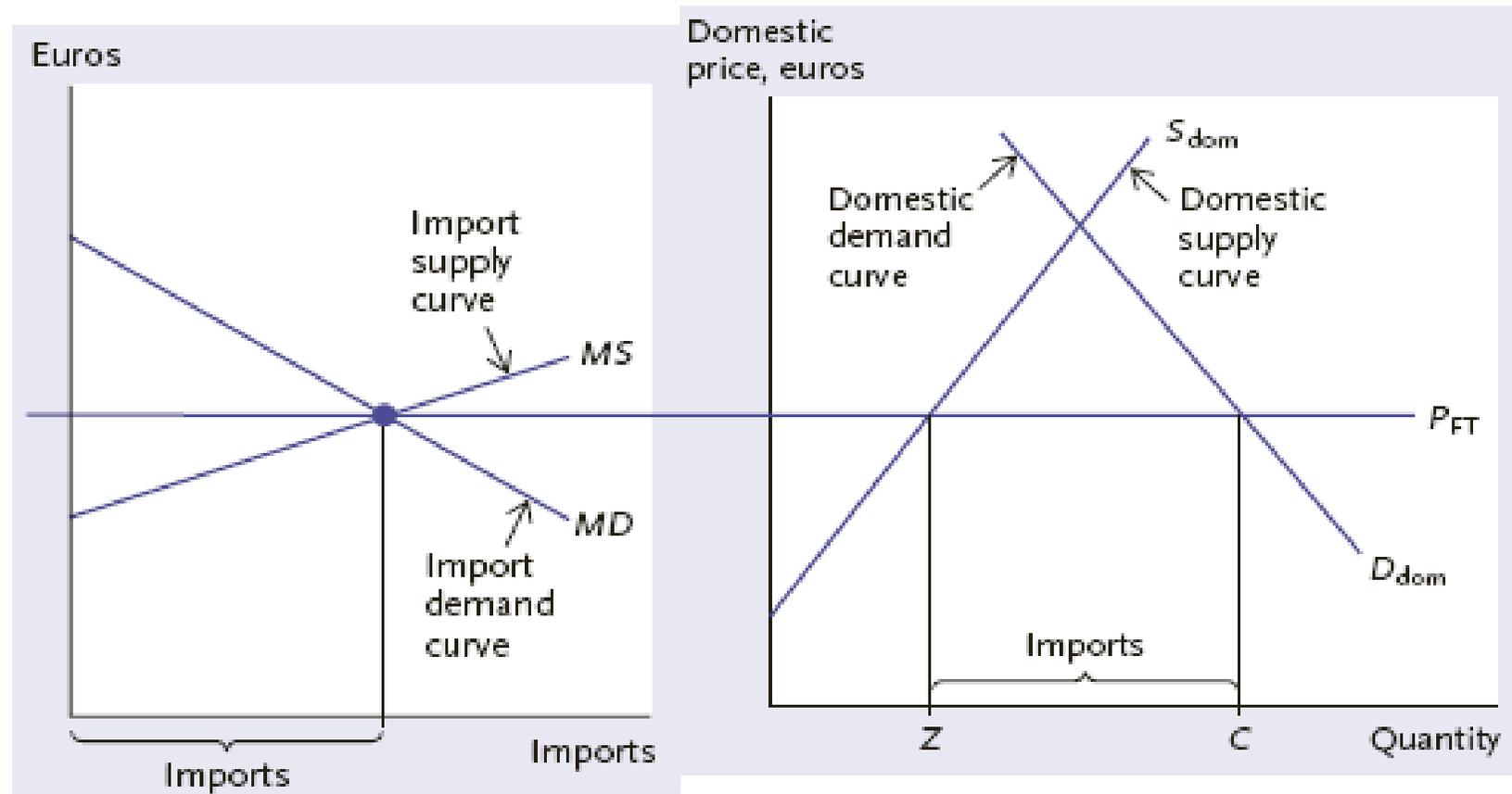


# Trade Volume Effect, Border Price Effect

- Decomposing Foreign gain from price rise,  $P'$  to  $P''$ :
  - area D: Foreign gains from getting a higher price for the goods it sold before at  $P'$  (border price effect),
  - area F: Foreign gains from selling more (trade volume effect).



# The Workhorse: MD-MS Diagram



Permits tracking domestic and international consequences of a trade policy change...

# MFN Tariff Analysis

- the effects of a non-discriminatory tariff (“most-favoured nation” tariff)
  - price and volume effects (positive effects)
  - welfare effects
  - tariffs as a way of taxing foreigners
  - global welfare effects and retaliation

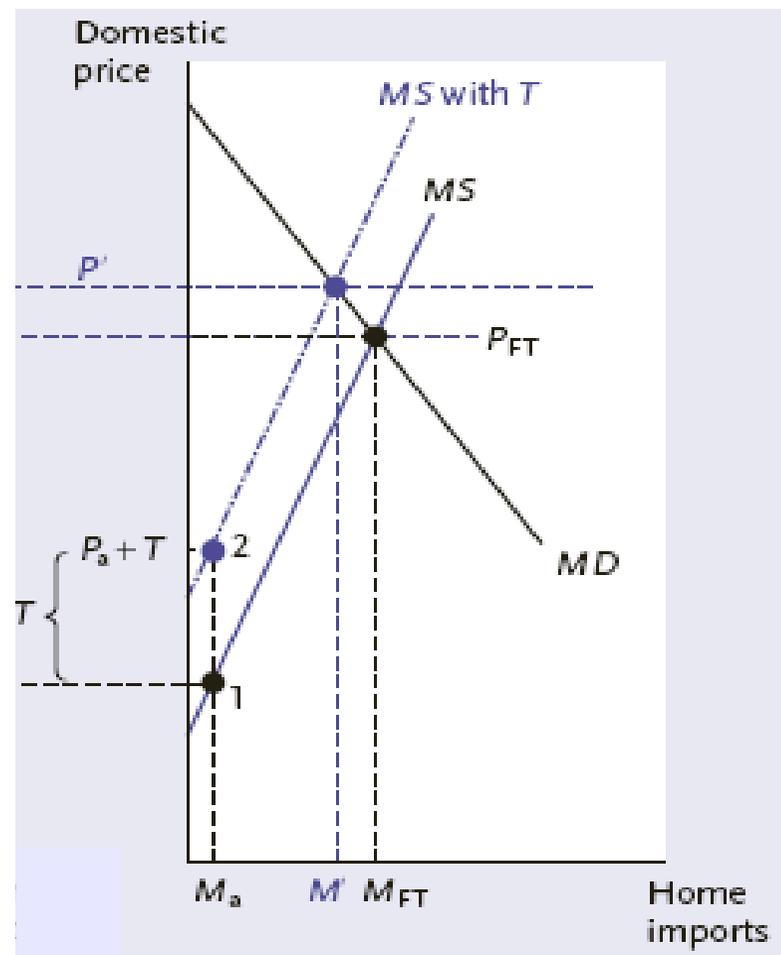
# MFN Tariff Analysis – positive effects

- Determine how tariff changes prices and quantities:  
suppose tariff imposed equals  $T$  euros per unit.
- Border price = the price foreign producers receive
- Domestic price = the price home consumers pay

$$\text{Domestic price} = \text{Border Price} + T$$

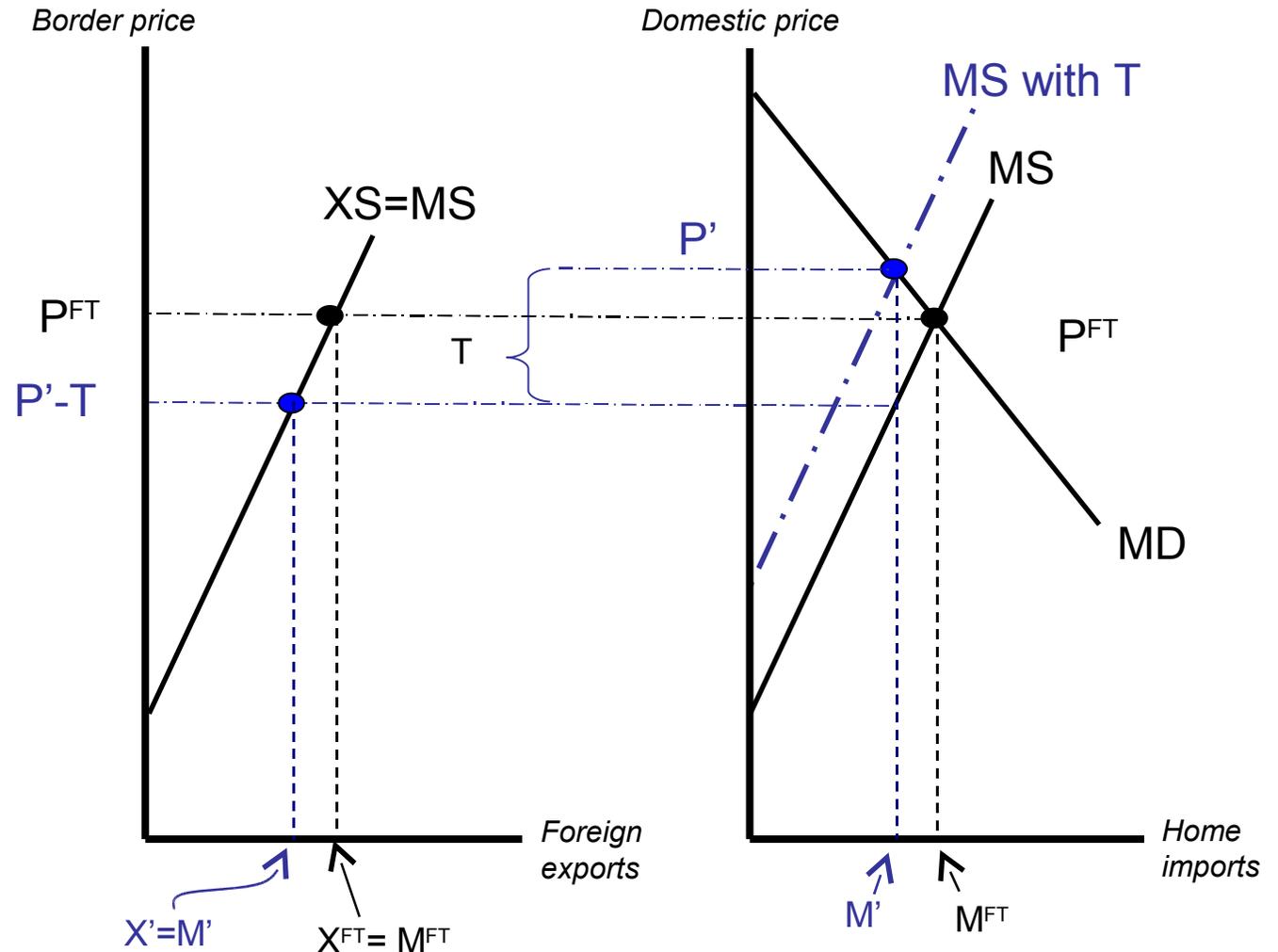
## MFN Tariff Analysis – positive effects

- Tariff shifts MS curve up by  $T$ : exporters would need a domestic price that is  $T$  higher to offer the same exports (because they earn the domestic price minus  $T$ ).
- For example, how high would **domestic price** have to be in home for foreigners to offer to export  $M^a$  to home?
  - Answer is  $P^a + T$ , so foreigners would see a price of  $P^a$ .



# MFN Tariff Analysis – positive effects

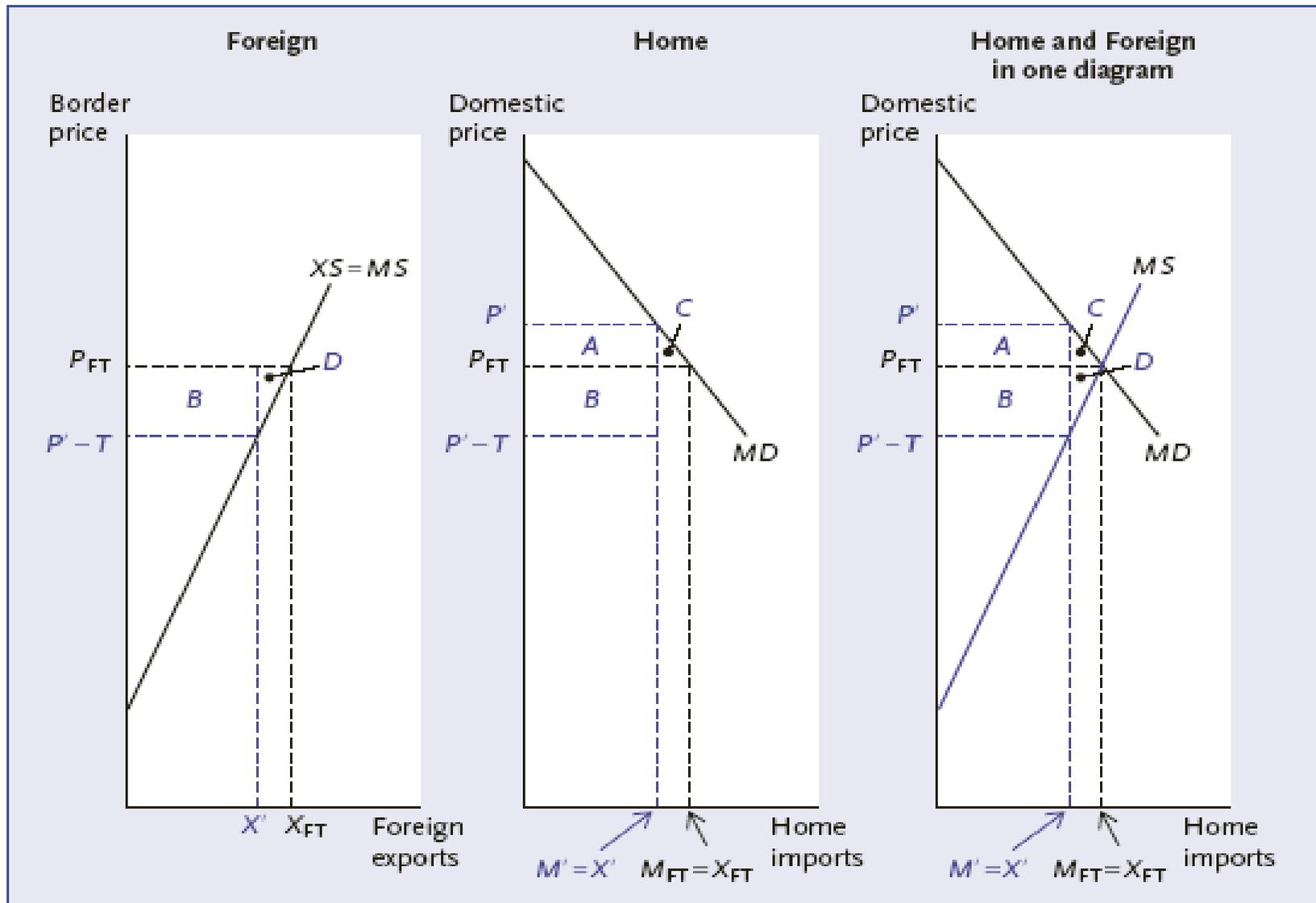
- New equilibrium in Home (MD=MS with T) is with  $P'$  and  $M'$ .
- Domestic price ( $P'$ ) now differs from border price ( $P'-T$ ).



# MFN Tariff Analysis – positive effects

- Domestic price rises.
- Border price falls.
- Imports fall.
- Can't see in diagram:
  - domestic consumption falls
  - domestic production rises
  - foreign consumption rises
  - foreign production falls.
- Could get this in diagram by adding open economy S & D diagram to right.

# MFN Tariff Analysis – Welfare Effects



# MFN Tariff Analysis – Welfare Effects (Home)

- Drop in imports creates loss equal area C
  - (Trade volume effect).
- Drop in border price creates gain equal to area B
  - (Border price effect).
- Net effect on Home =  $-C+B$ .
- ALTERNATIVELY:
  - private surplus change (sum of change in producer and consumer surplus) equal to minus  $A+C$
  - increase in tariff revenue equal to  $+A+B$
  - same net effect,  $B-C$  (but less intuition).

# MFN Tariff Analysis – Welfare Effects (Foreign)

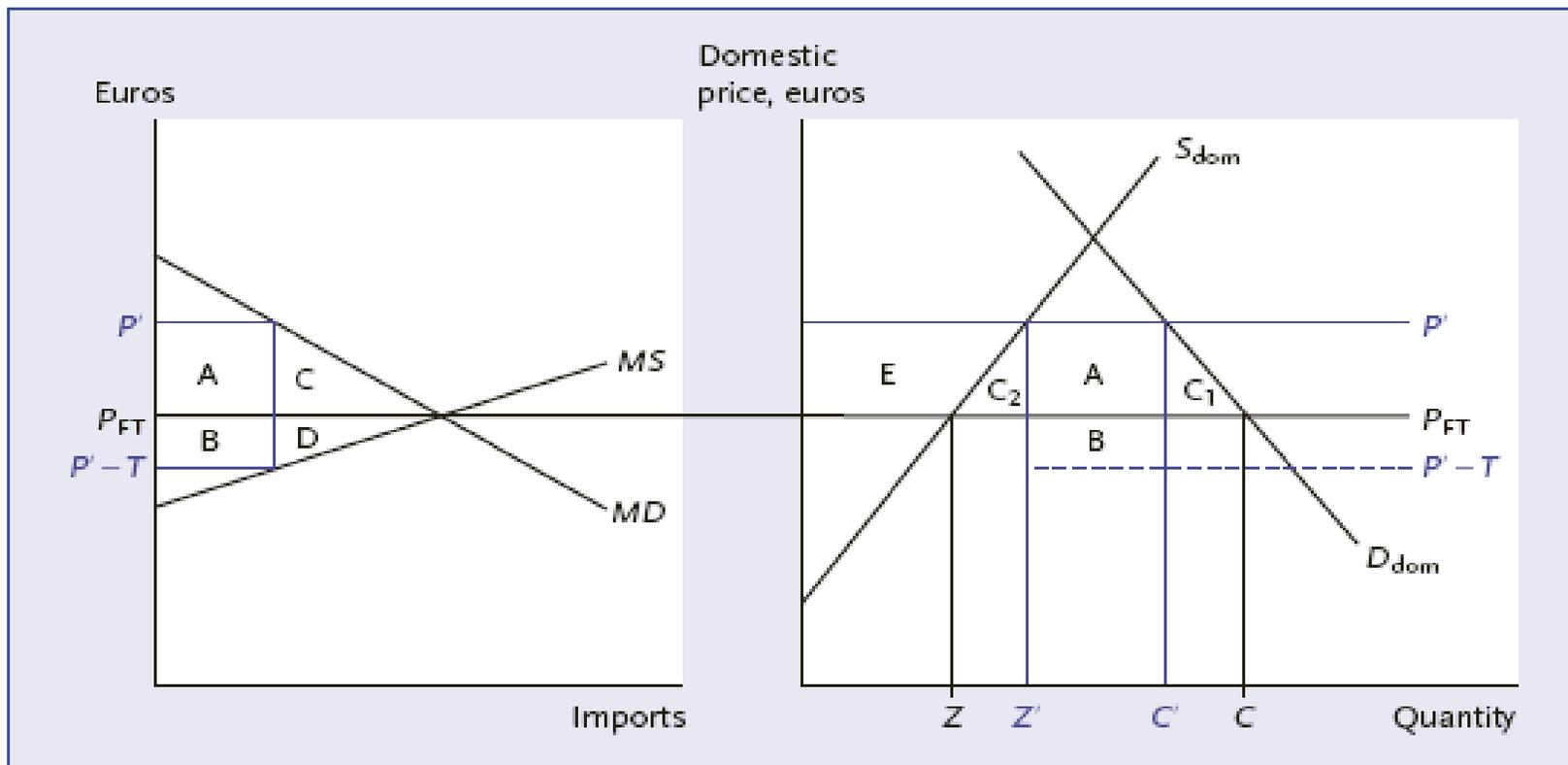
- Drop in exports creates loss equal area D:
  - (Trade volume effect).
- Drop in border price creates loss equal to area B:
  - (Border price effect).
- Net effect on Foreign =  $-D-B$ .
- ALTERNATIVELY:
  - private surplus change (sum of change in producer and consumer surplus) equal to minus  $-D-B$
  - same net effect,  $B-C$  (but less intuition).

# MFN Tariff Analysis – Distributional Consequences (Home)

- Trade protection imposed mainly due to politically considerations raised by distributional consequences.
- Thus important for some purposes to see domestic consequences of trade policy change.
- For this, add the open economy supply and demand diagram to the right of the MD-MS diagram:
  - MD-MS diagram tells us the price and quantity effects of trade policy change
  - Open-economy S&D tells us the domestic distributional consequences.

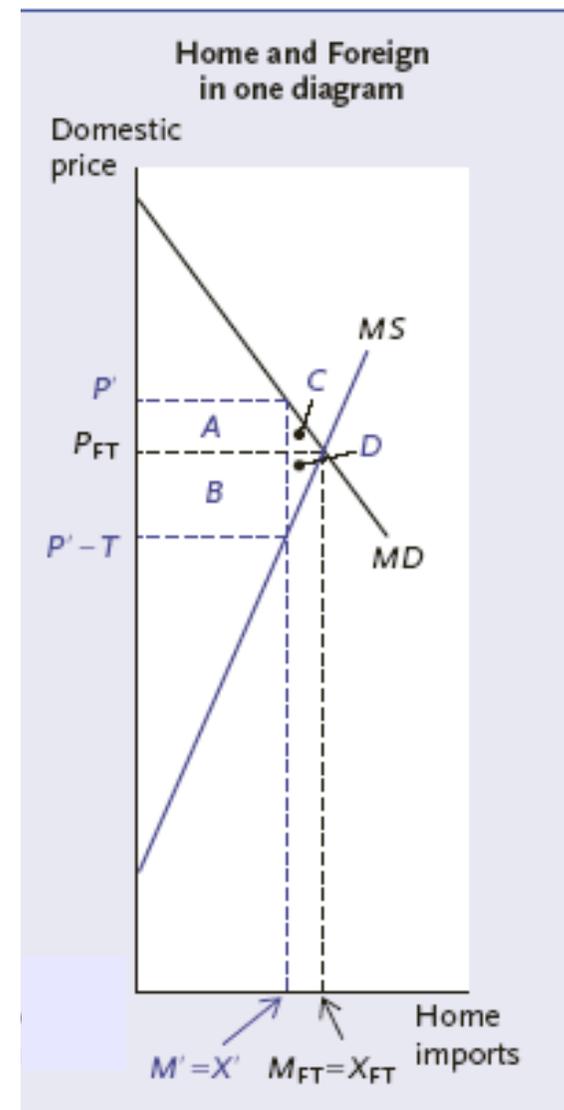
# MFN Tariff Analysis – Distributional Consequences (Home)

- Home consumers lose, area  $E+C_2+A+C_1$ ; home producers gain  $E$ , home tariff revenue rises by  $A+B$ :  
 net change =  $B - C_2 - C_1$  (this equals  $B-C$  in left panel).



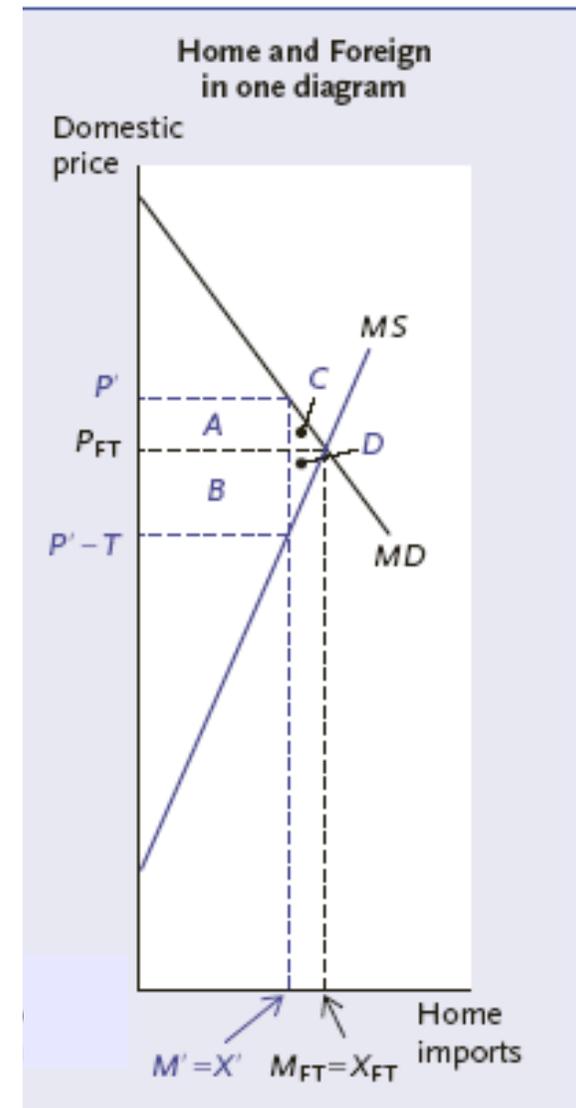
# Welfare Effects: Useful Compression

- In cases of more complex policy changes useful to do home and foreign welfare changes in one diagram.
- MS-MD diagram allows this:
  - home net welfare change is  $-C+B$
  - foreign net welfare change is  $-D-B$
  - world welfare change is  $-D-C$ .
- Notice similarity with standard tax analysis.



# Tariffs as a way of taxing foreigners

- Area B (border price effect): Home's gain from taxing foreigners (drop in border price from  $P_{FT}$  to  $P' - T$ ).
- Area C (trade volume effect): Home's efficiency loss from the tariff.
- If home gains ( $-C + B > 0$ ) it is because it exploits foreigners by 'making' them to pay part of the tariff (area B) enough to offset inefficiency effects (area C).



# Global welfare effects and retaliation

- home net welfare change is  $-C+B$
- foreign net welfare change is  $-D - B$
- world welfare change is  $-D - C$ .
- If Home and Foreign were symmetric and both imposed tariffs, both lose (net welfare change is  $-D - C$ )
- Protection by all nations is a negative sum game.
- The economics at the root of WTO negotiations:
  - If only one nation liberalizes, it might lose.
  - If liberalisation is coordinated, all nations may win.

# A Typology for Trade Barriers

- Phase 1 of EU integration (1958-68): remove tariffs
- Single Market programme (1986-): 'non-tariff' barriers
- Typology based on 'rents', i.e. who earns the gap between domestic and border price?:
  - DCR (domestically captured rents)
  - FCR (foreign captured rents)
  - Frictional (no rents since barriers involve real costs of importing/exporting).

# A Typology for Trade Barriers

- Tariffs: government get the rent → DCR
- Quotas (T as the “tariff equivalent” of the quota)
  - Licence holder is Home resident → DCR
  - Licence holder is Foreign resident → FCR
- ‘Price undertaking’ → FCR
- technical barriers → no rent created
  - bureaucratic restrictions
  - Industrial and health standards (Consumer protection or protectionism?)→ mutual recognition

# A Typology for Trade Barriers

- Net home welfare changes for:
  - DCR =  $B-C$
  - FCR =  $-A-C$
  - Frictional =  $-A-C$ .
- Net foreign welfare changes for:
  - DCR =  $-B-D$
  - FCR =  $+A-D$
  - Frictional =  $-B-D$ .
- *Note:* foreign may gain from FCR.

