

# CHAPTER 5

## THE STANDARD TRADE MODEL

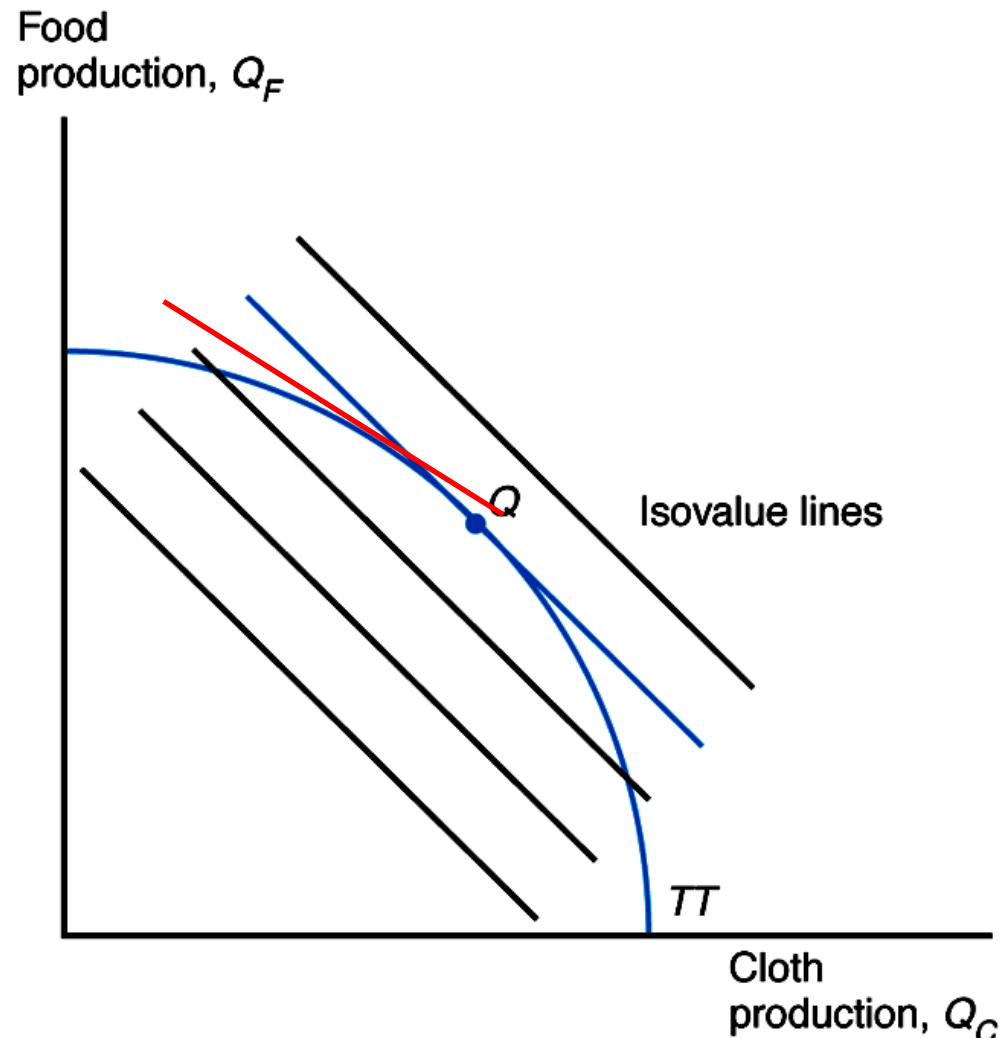
by Richard Baldwin,  
*Graduate Institute of International  
Studies, Geneva*

# Hybrid trade model

- Here we combine elements of HO & Ricardo.
- We assume PPF's are bowed out, so RS curves are upward sloped.
- All consumers are same & have standard IC's so the RD curve is downward sloped.
  - With exceptions.

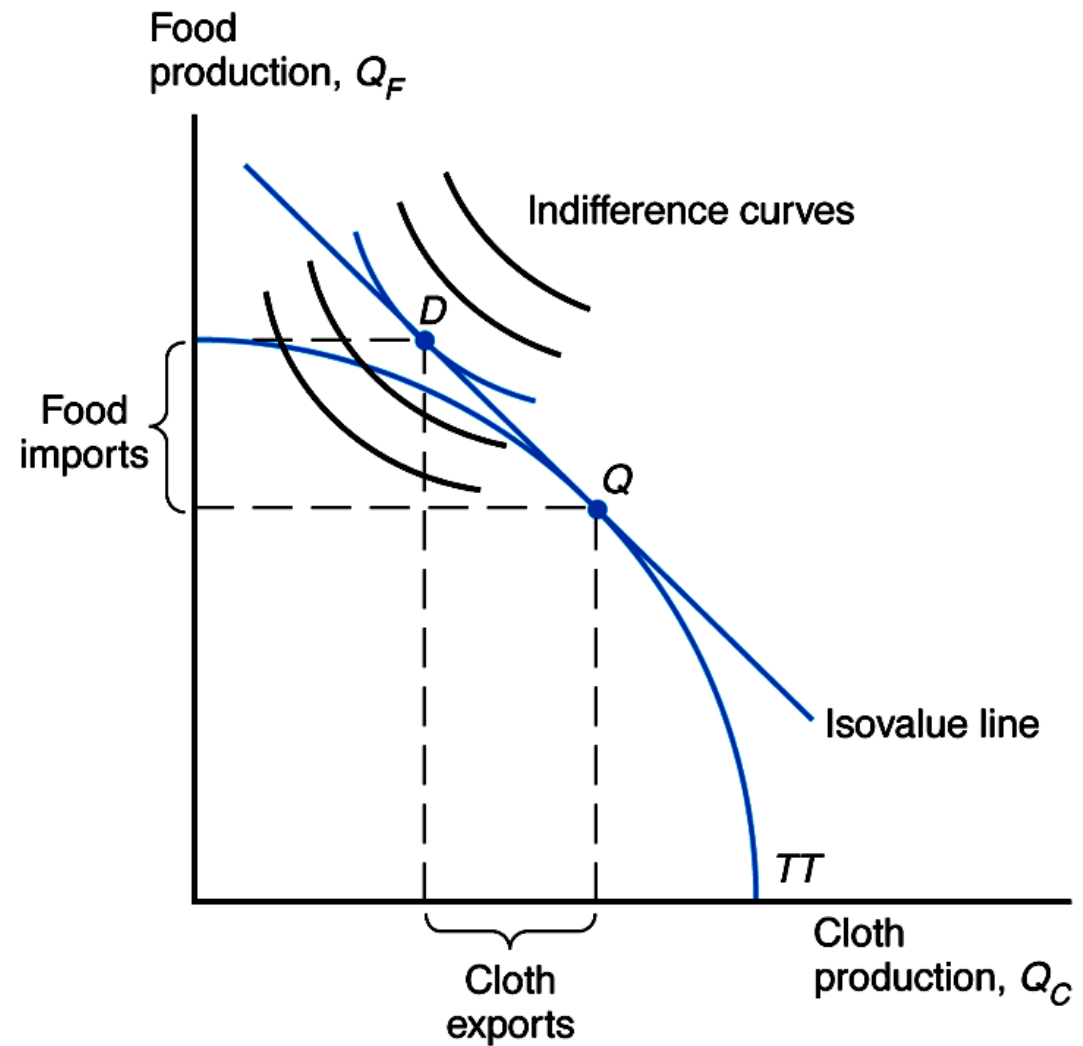
# Standard trade diagram

- This is why nation produces on the PPF.



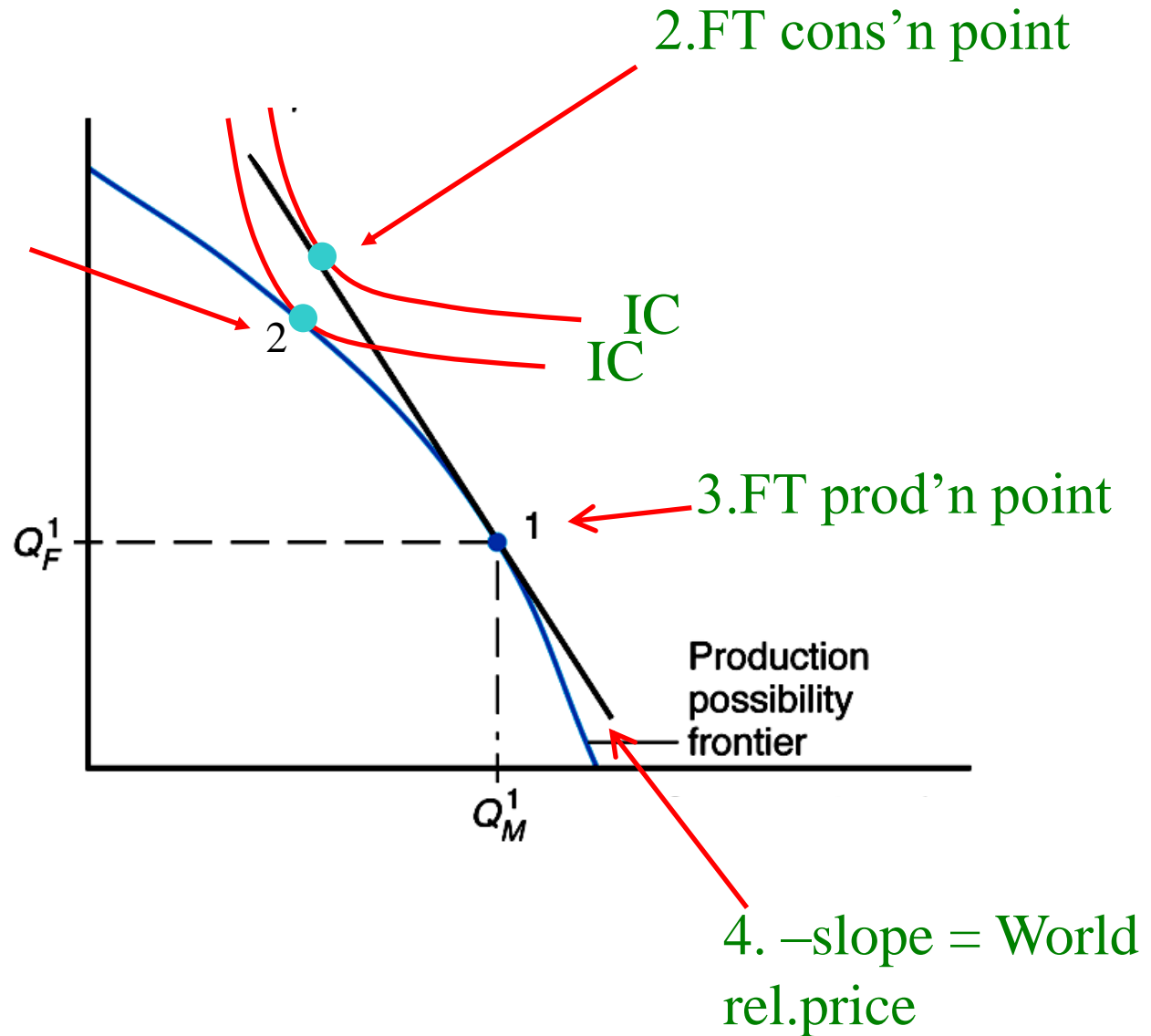
# Standard trade diagram

- This is why nation consumes on the trade budget line.



# GFT in standard trade diagram

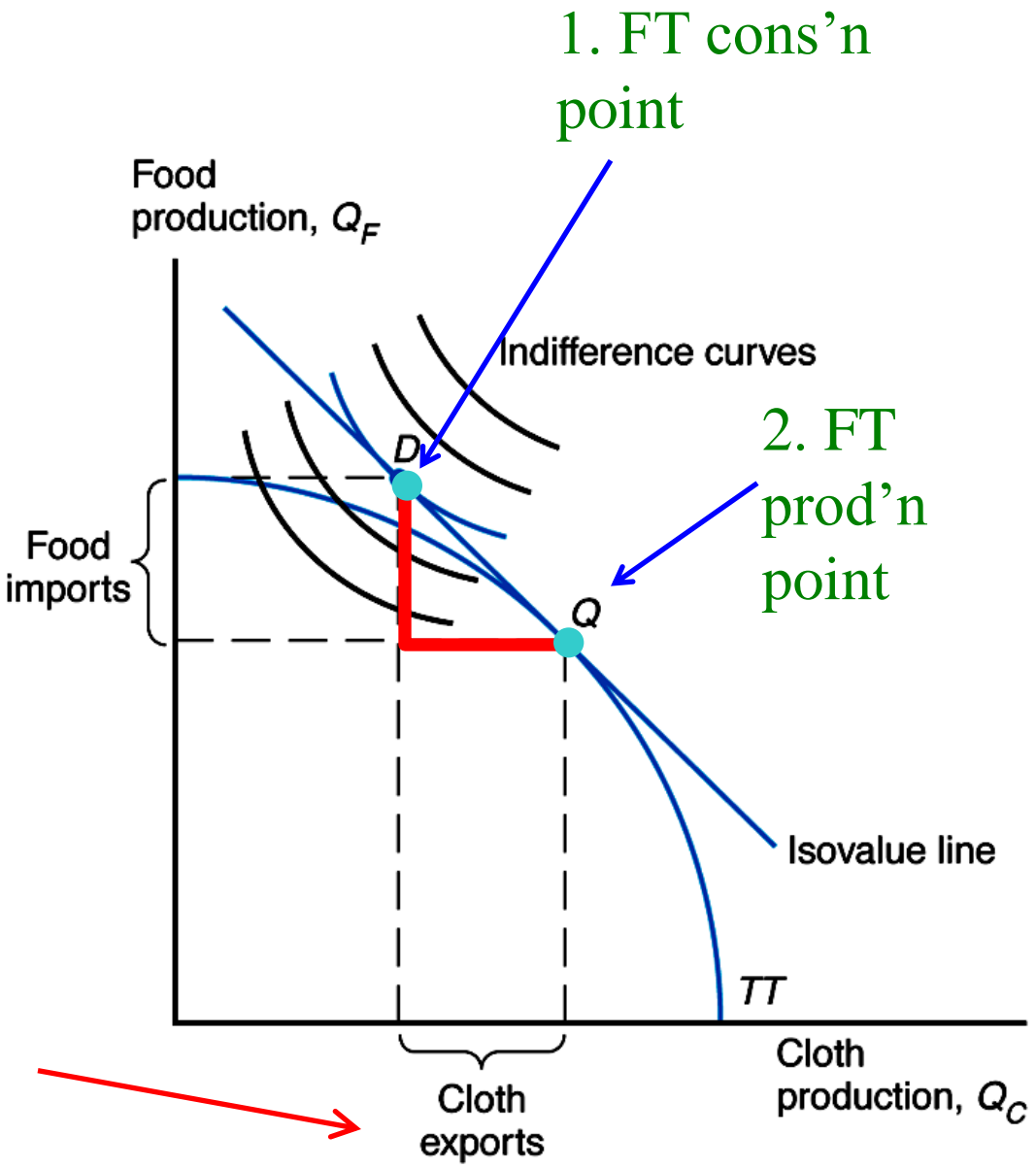
1. Aut'y point  
(cons'n = prod'n)



- Can see trade pattern in this diagram
  - “Trade triangle”

3. NB: Home consumes more food than it produces (i.e. imports food)

4. NB: Home produces more cloth than it consumes (i.e. exports cloth)



- Impact of a terms of trade improvement (i.e. rel.price change). Rel.price of cloth rises.

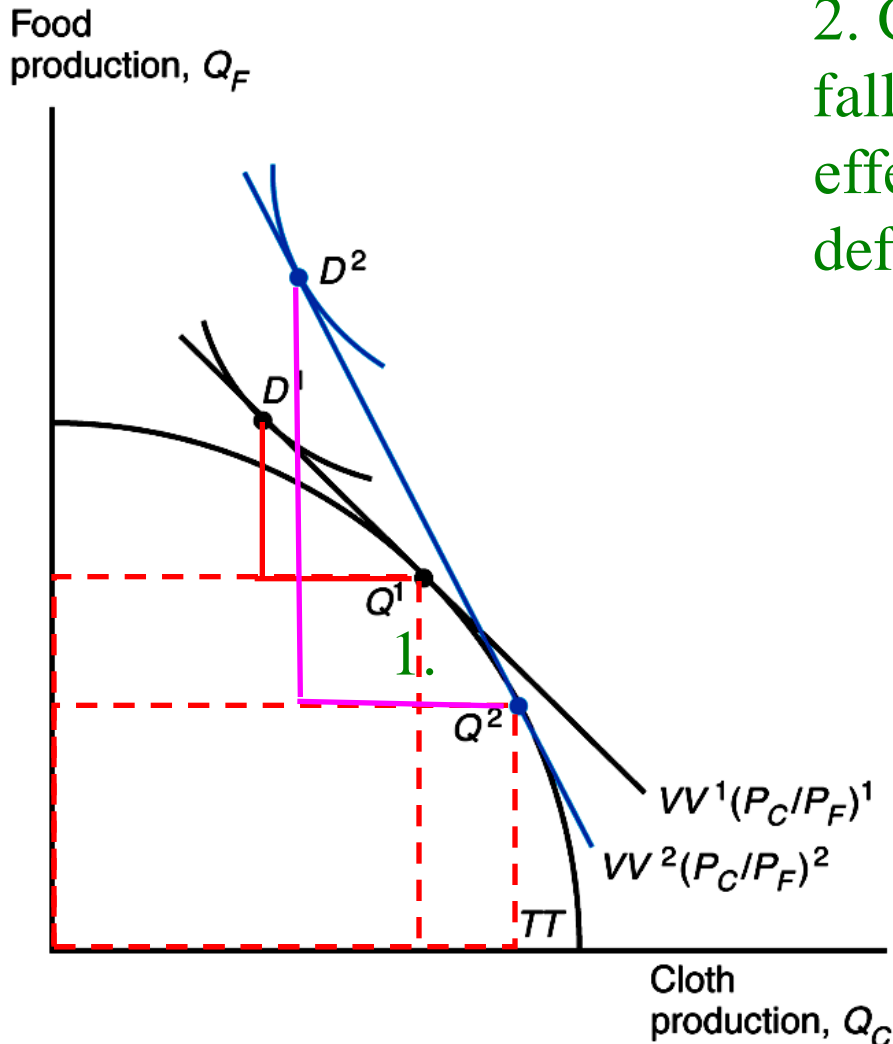
1. prod'n of cloth rises.

2. Cons'n of cloth may rise or fall (income & substitution effects), but cons'n of food definitely increases.

3. Volume of trade rises (trade triangle gets bigger).

4. Home welfare rises.

5. This is called a terms-of-trade gain (price of our exports rises rel. to price of our imports. (Cheap imports are good for a nation's welfare!))



- Impact of a terms of trade worsening (i.e. rel. price of our imports rises, i.e. rel. price of our exports fall).

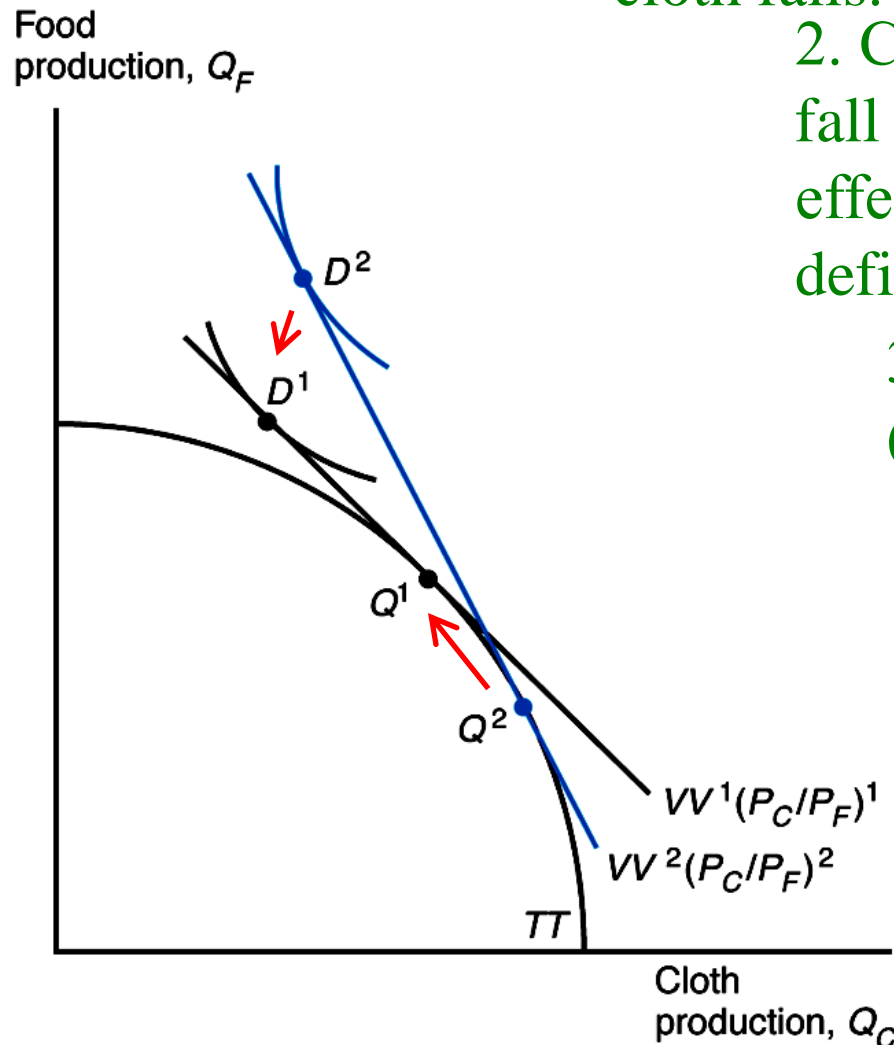
1. prod'n of cloth falls.

2. Cons'n of cloth may rise or fall (income & substitution effects), but cons'n of food definitely decreases.

3. Volume of trade falls (trade triangle gets smaller).

4. Home welfare falls.

5. This is called a terms-of-trade loss. (high priced imports are bad for a nation's welfare.)





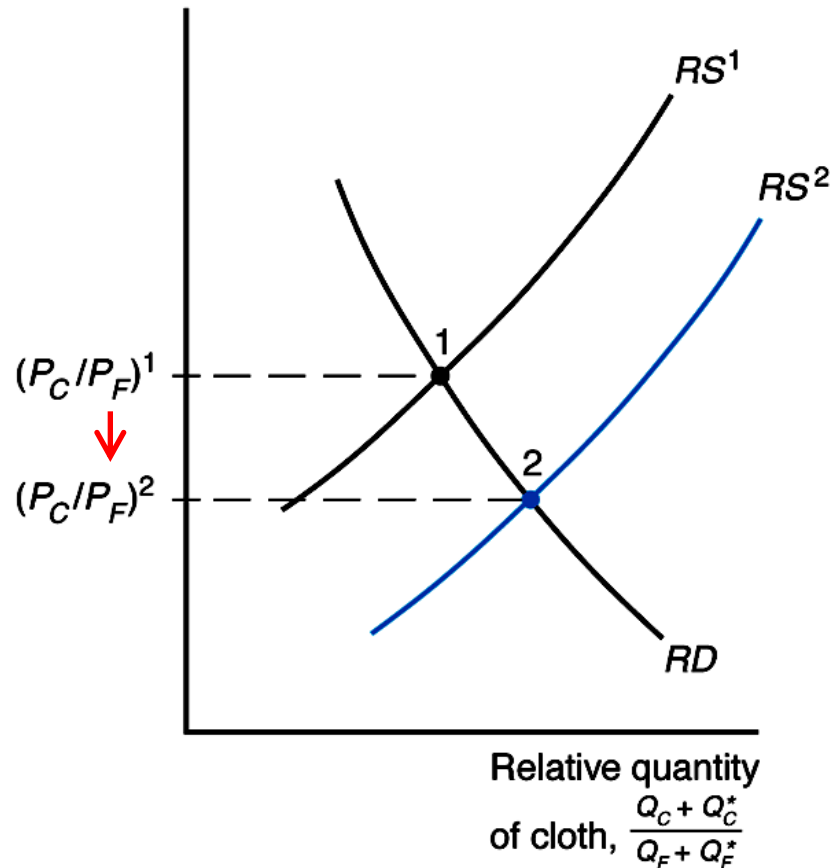
# Impact of Economic Growth

- The impact of growth depends upon its ‘bias’, i.e. does output of one sector grow more, or less, or same as other sector, holding rel. price constant.
- If a nation experiences relatively fast expansion of output of its export good, then the price of its export tends to fall on the world market.
  - Terms of trade loss may partially, or in extreme situations, more than fully offset standard gain from growth.
- If a nation experiences relatively fast expansion of output of its import good, then the rel. price of its export tends to rise on the world market.

# 2 types of biased growth

Relative price  
of cloth,  $P_C/P_F$

ToT loss.

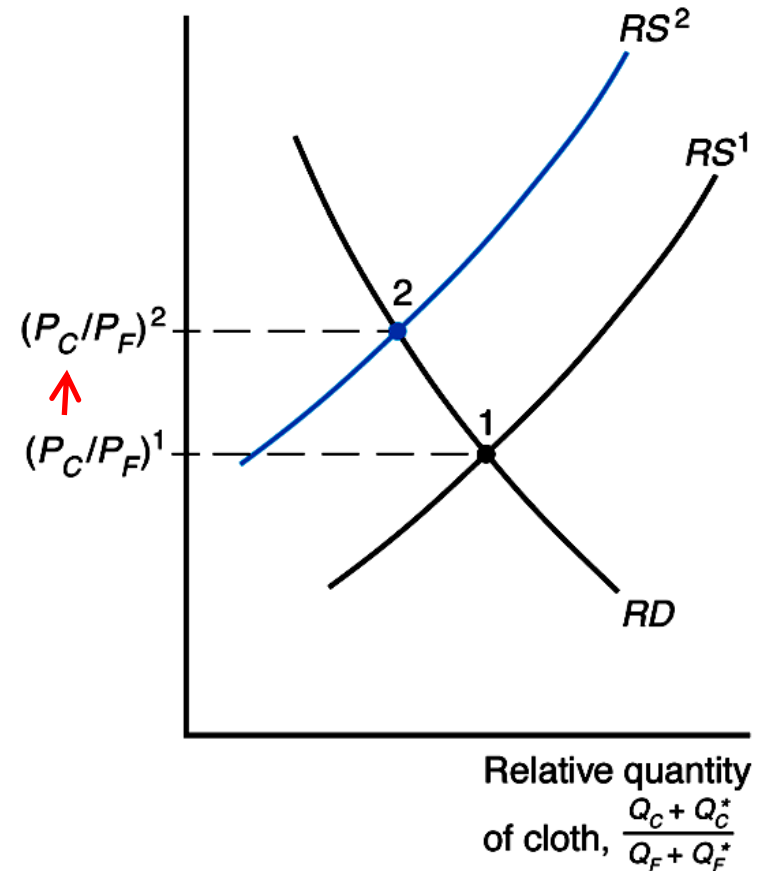


(a) Cloth-biased growth

Export-biased growth (cloth exporter)

Relative price  
of cloth,  $P_C/P_F$

ToT gain.

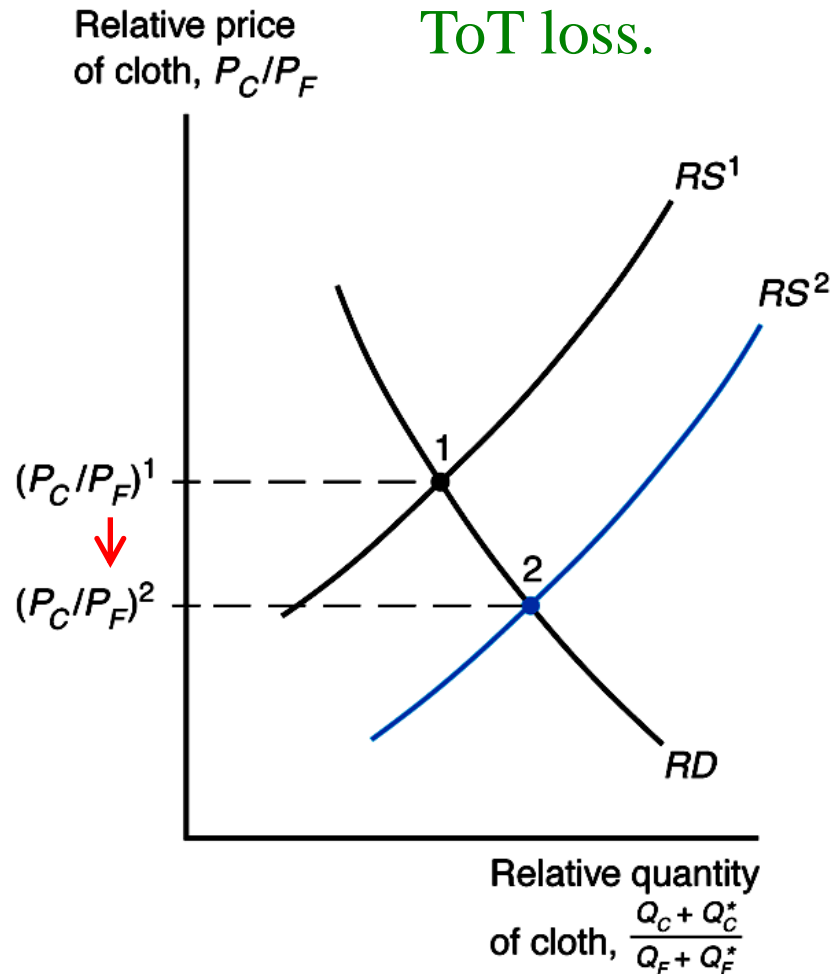


(b) Food-biased growth

Import-biased growth (cloth exporter)

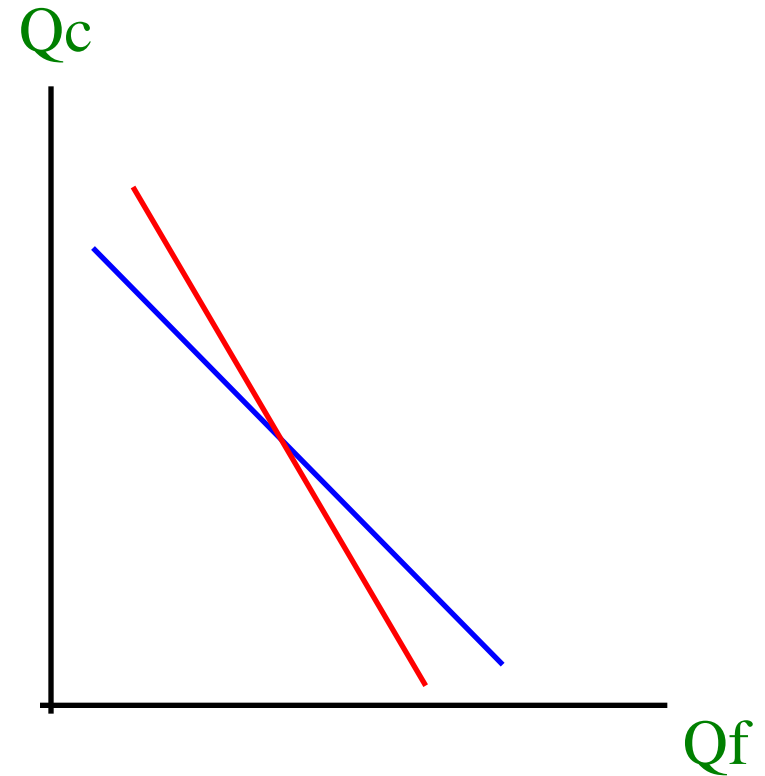
# 2 types of biased growth

ToT loss.



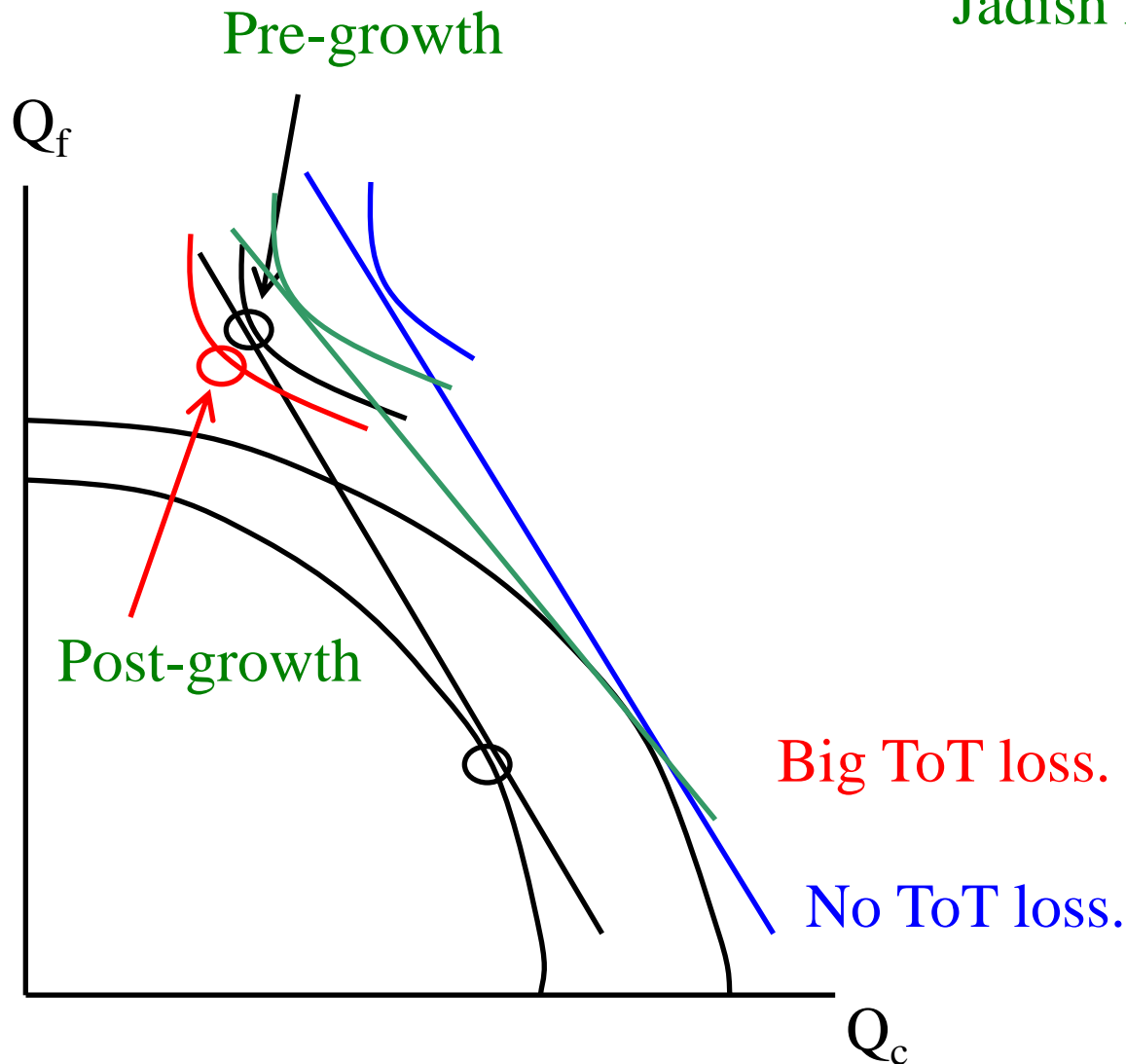
(a) Cloth-biased growth

Export-biased growth (cloth exporter)



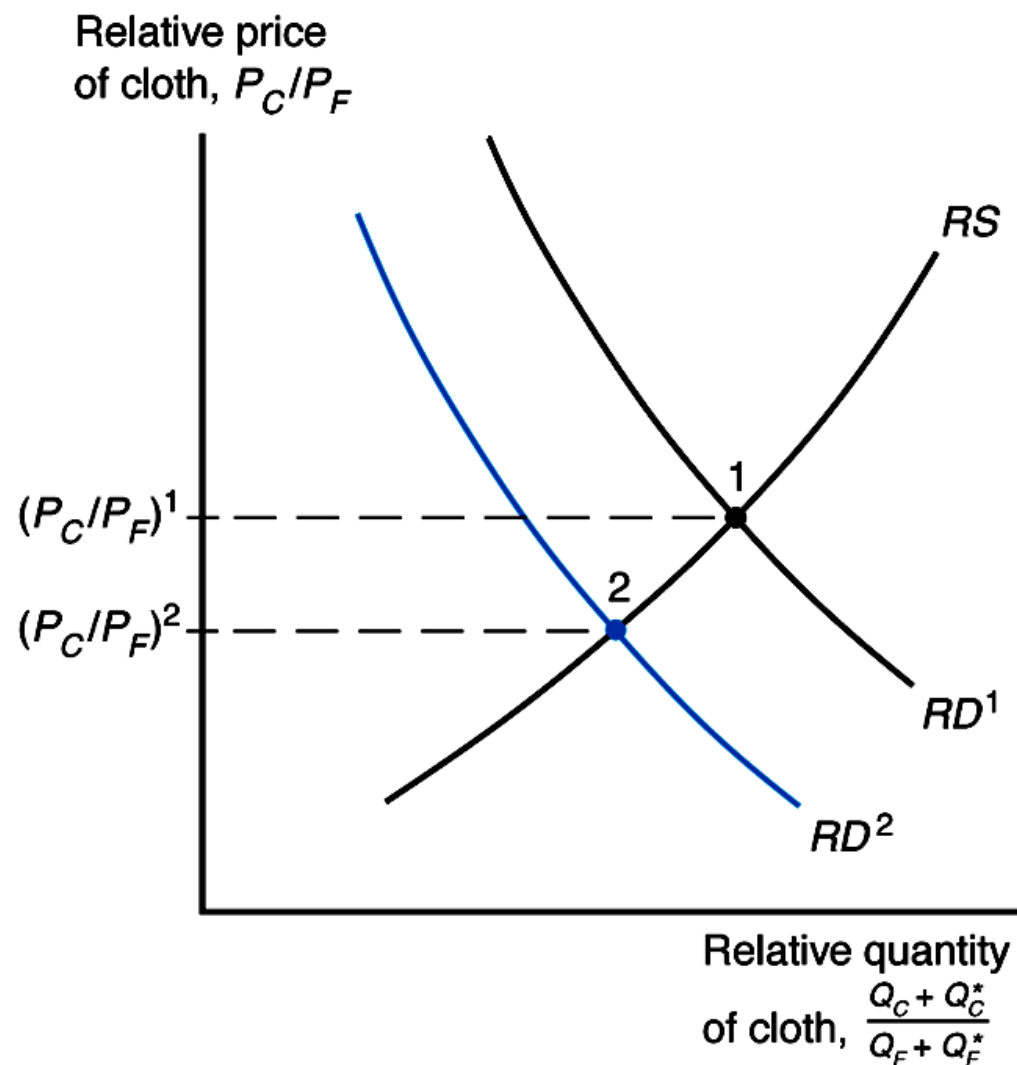
# Immiserising growth possibility

Jadish Bhagwati



# RD shifts: Transfer problem

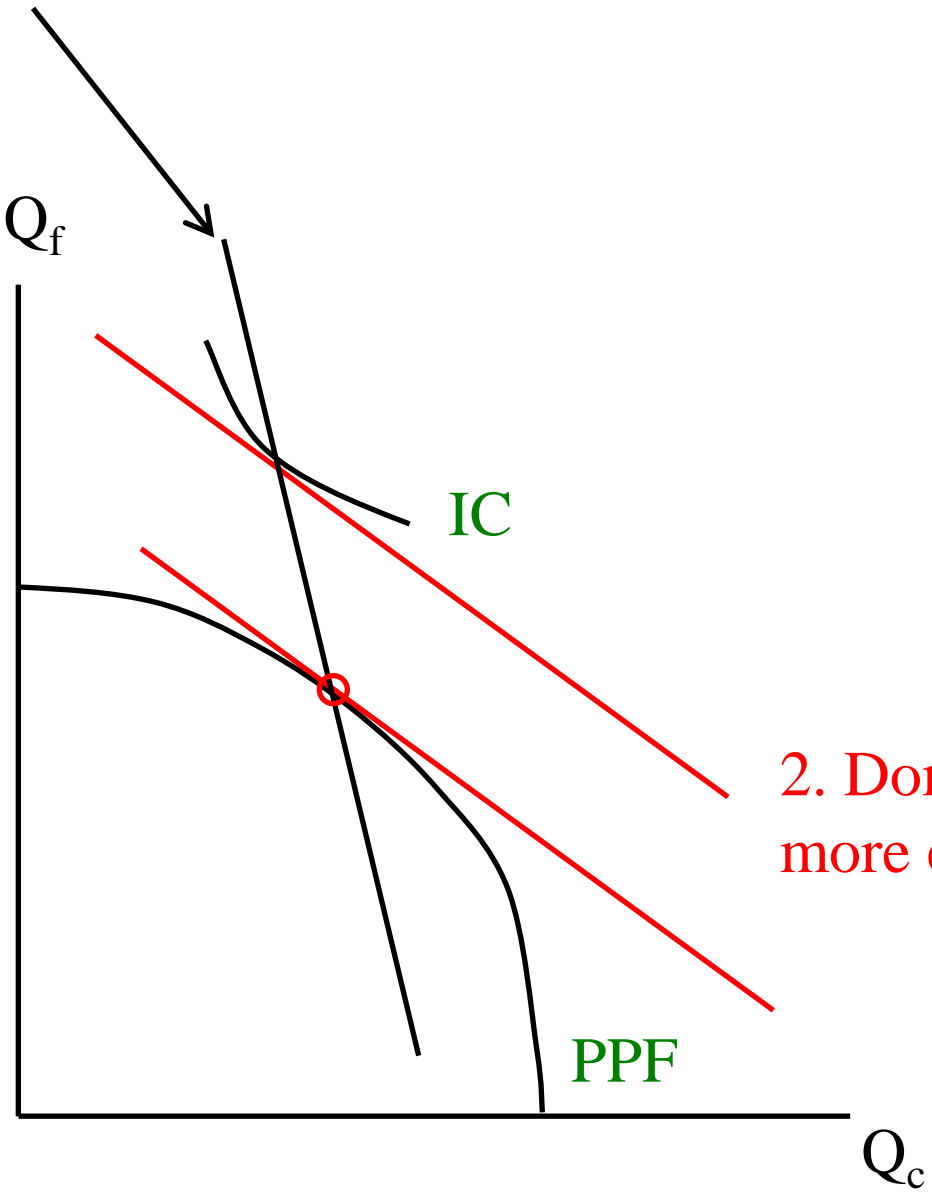
- If nation's have different preferences for the goods, income transfers among nations will move the RD curve.
- If Home has relatively stronger preference for its export, then lower Home income & higher Foreign income will mean a fall in the RD for Home's export.
- Many possibilities, most not very relevant to trade policy analysis.



# Tariffs in G.E.

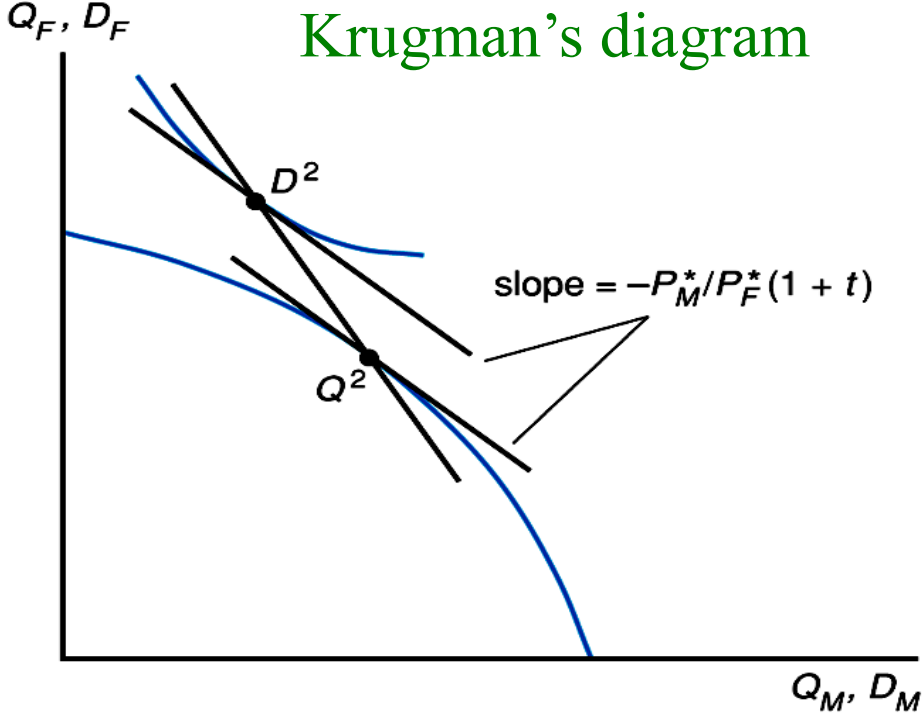
- P.E. analysis of tariffs is most illuminating, but you should have seen it is G.E. at least once (so you know that P.E. is good enough!)
- ◉ A tariff introduces a new relative price. The rel.price faced by Home consumers is not the rel.price that the nation pays for imports.
  - 2 prices: domestic rel. price & world rel. price
- This shifts both RD and RS.
- Start with the PPF & IC version.

1. World rel. price = national budget line for imports & exports.

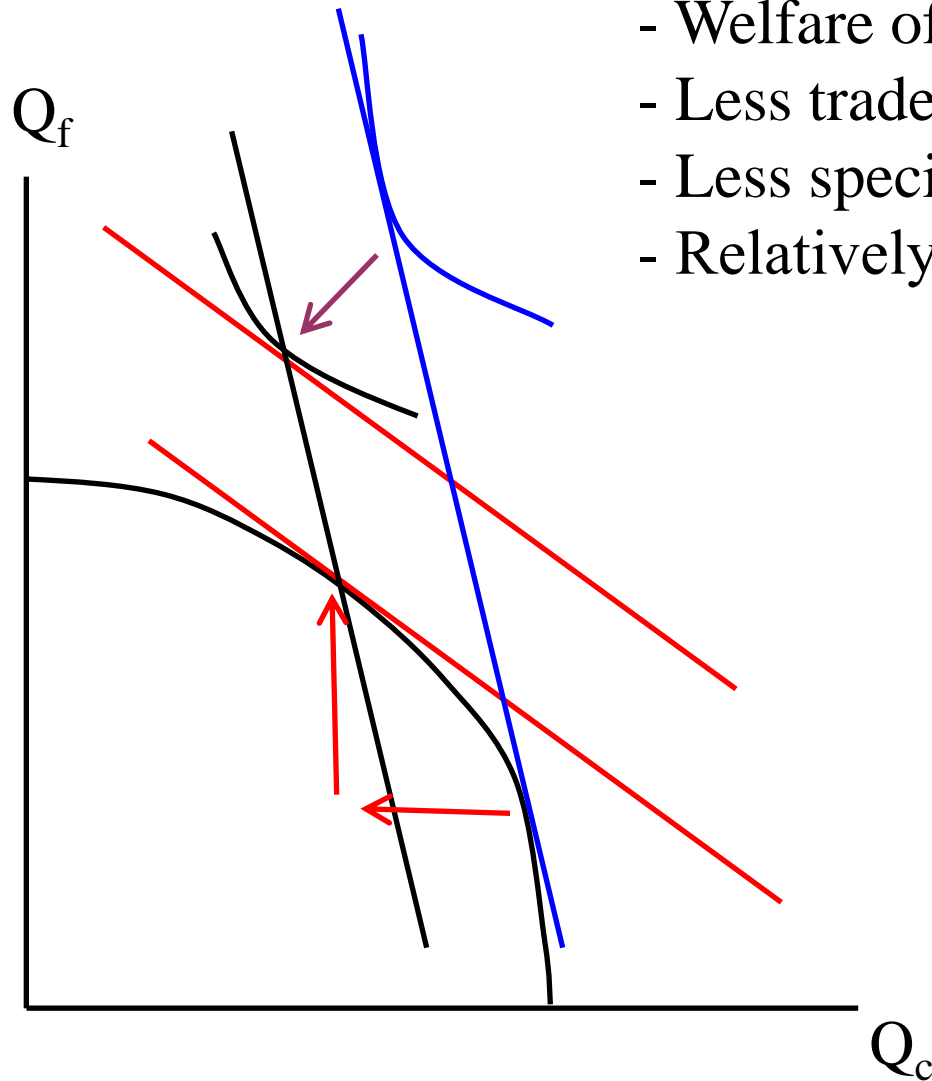


2. Domestic rel. price (imports more expensive, than world price).

Krugman's diagram



# Pre & Post welfare comparison.



NB:

- Welfare of nation as whole is lower.
- Less trade (triangle is smaller).
- Less specialisation in export sector.
- Relatively less cons'n of imports.



## 2 sources of welfare loss from the tariff.

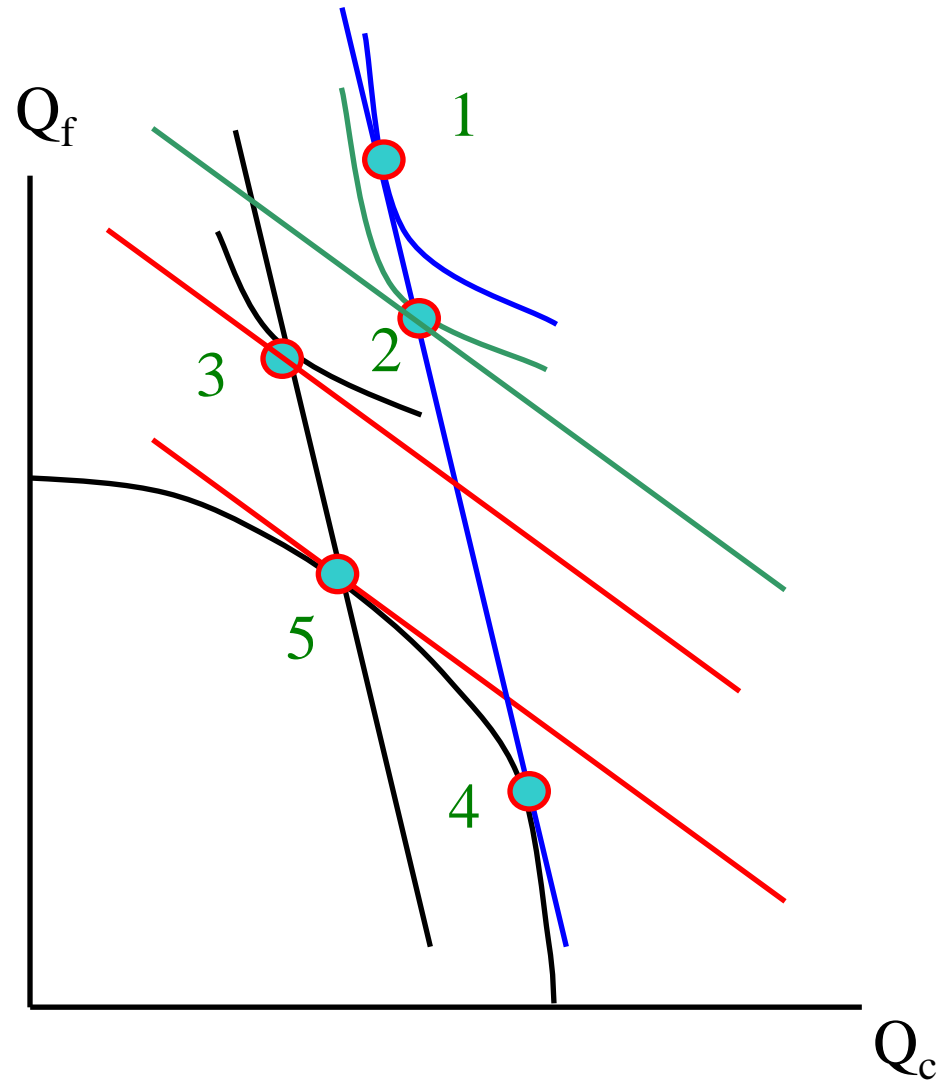
We can separate the consumption & production effects.

S'pose firms see FT rel. price, but consumers see the with-tariff relative price.

- How?

- Consumption is inefficient, namely 2 rather than 1. (This is the consumption distortion)

- If producers also see the distorted price, then shift point 4 to point 5 and we have addition loss of welfare. This is the production distortion.



## 2 sources of welfare loss from the tariff.

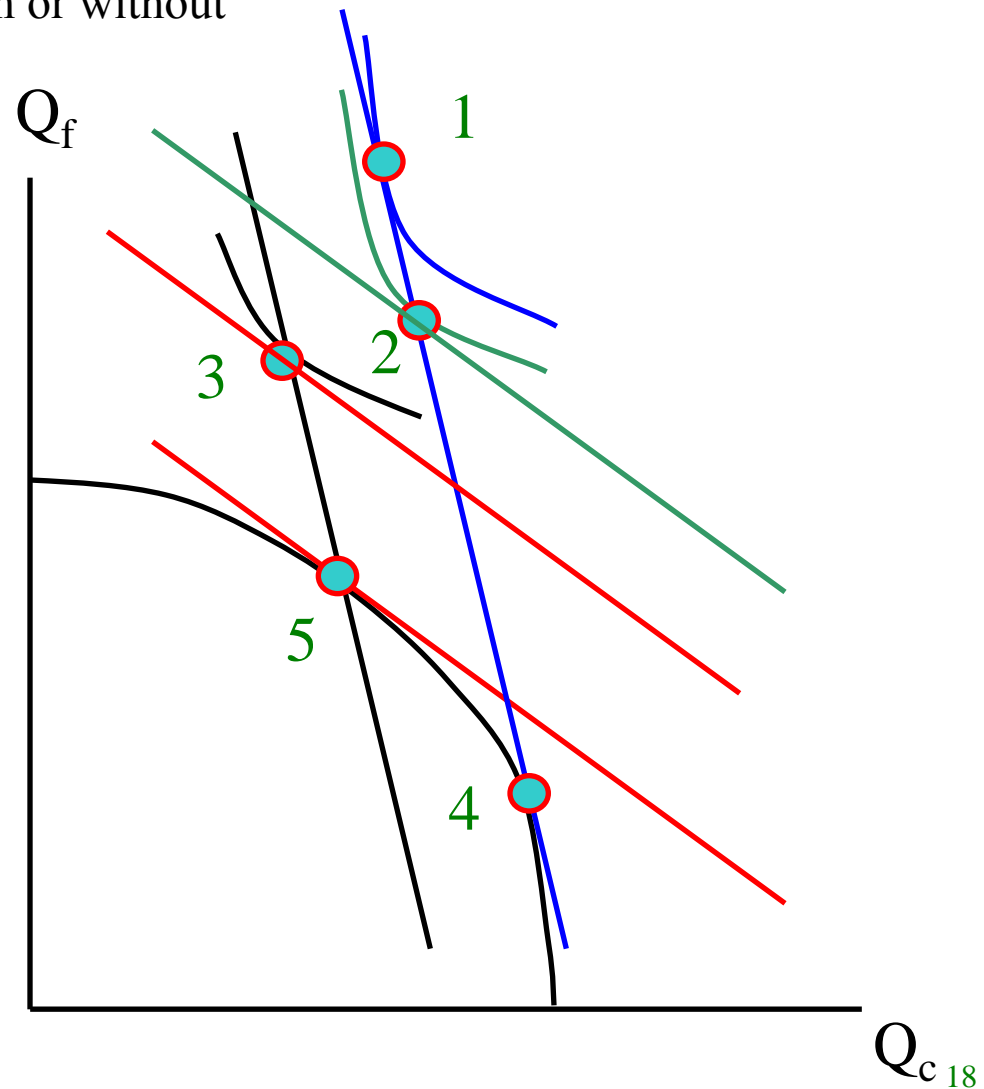
Point 1 is no tariff for cons'rs & firms

Point 2 is tariff for cons'rs & no tariff for firms

Point 3 is tariff for cons'rs & tariff for firms

Point 4 prod'n with no tariff for prod'rs & with or without tariff for cons'rs

Point 5: production when tariff for all.

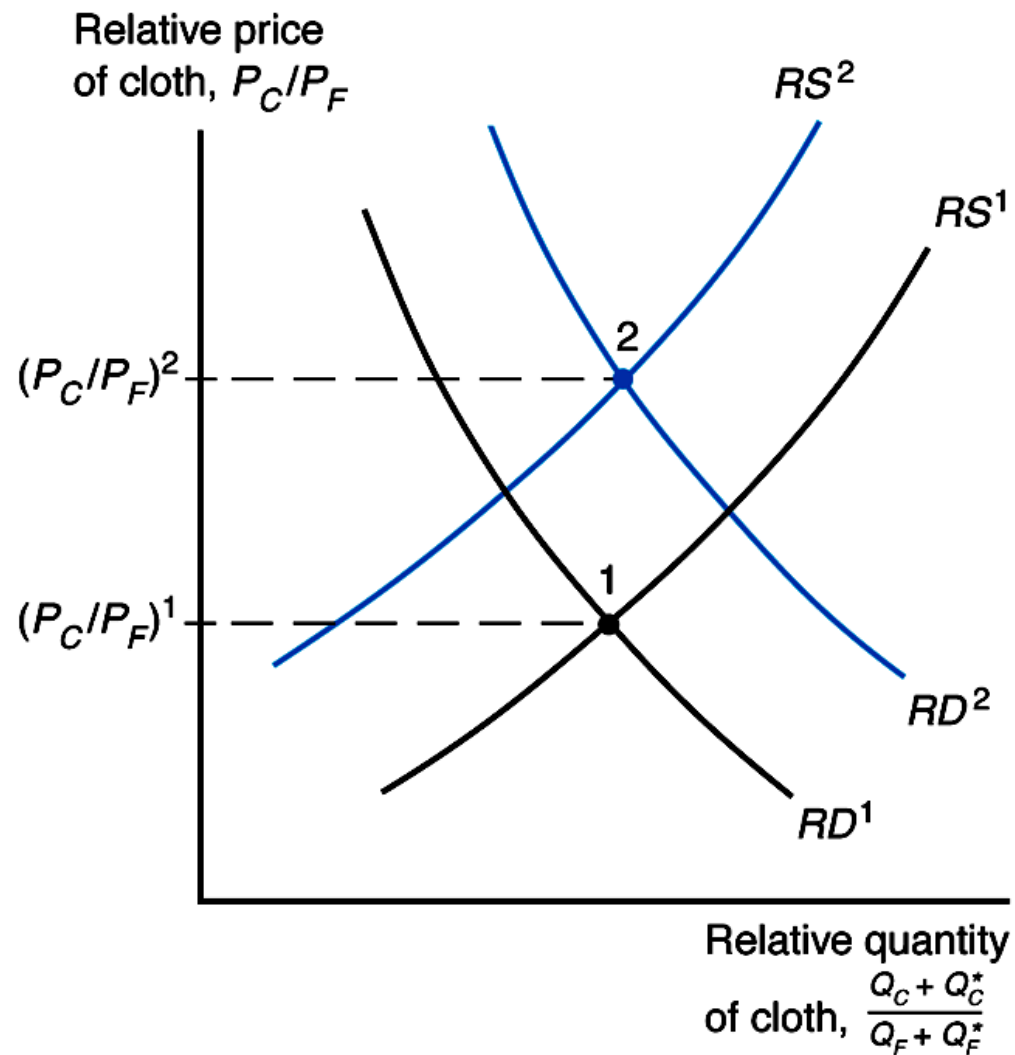


# Summary

- The sacred trade diagram shows that, with a tariff, the nation produces relative more F to C for any given world price. (i.e. less of its exported gd relative to its imported gd).
- Also, nation, with a tariff, consumes relative more of its exported gd for any world price.
- These changes will show up in the RD & RS curves ...

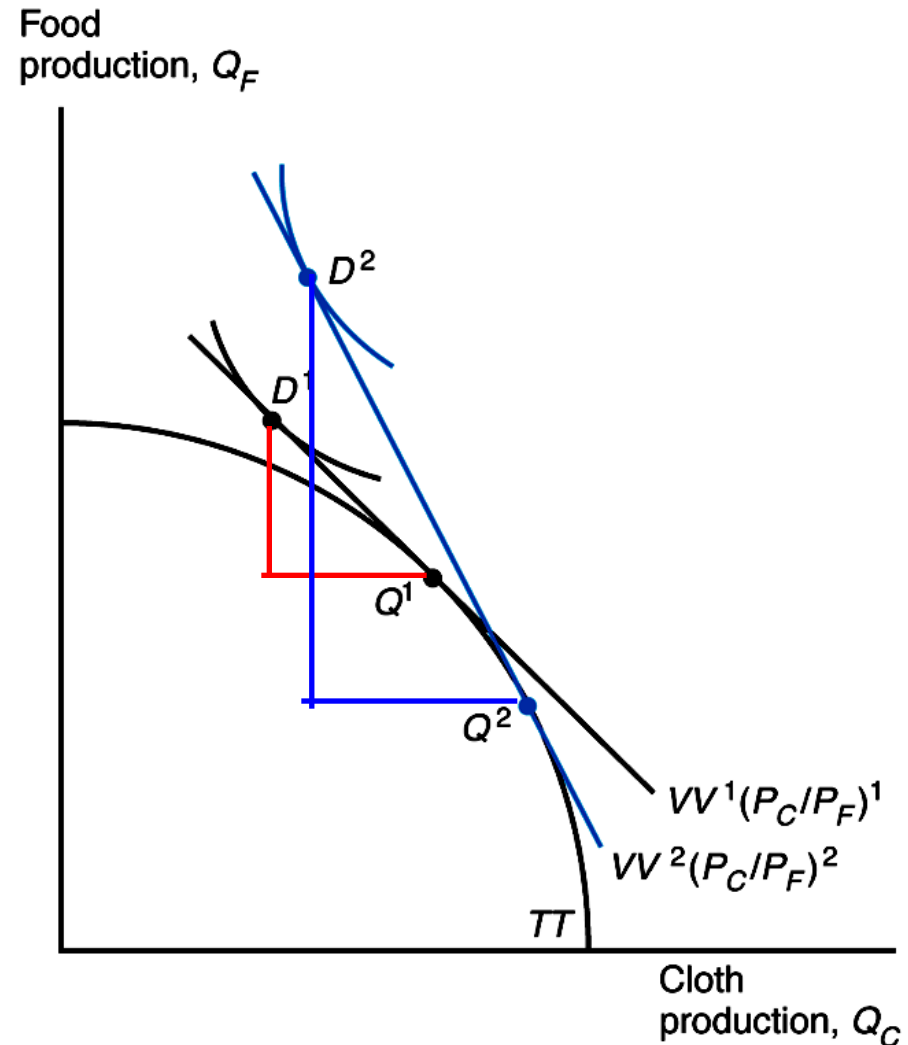
# In RD-RS diagram

- Tariff imposed by cloth exporting nation shifts RD out (more preference for C since F is rel. more expensive in Home than before).
- Tariff shifts RS back, since rel. less Home prod'n of C given internal price change.
- ToT gain for nation imposing tariff.
- This ToT gain might or might not be enough to compensate for the cons'n and prod'n distortions.
  - One can prove that if the tariff is sufficiently small, the nation will gain as long as Foreign doesn't retaliate.

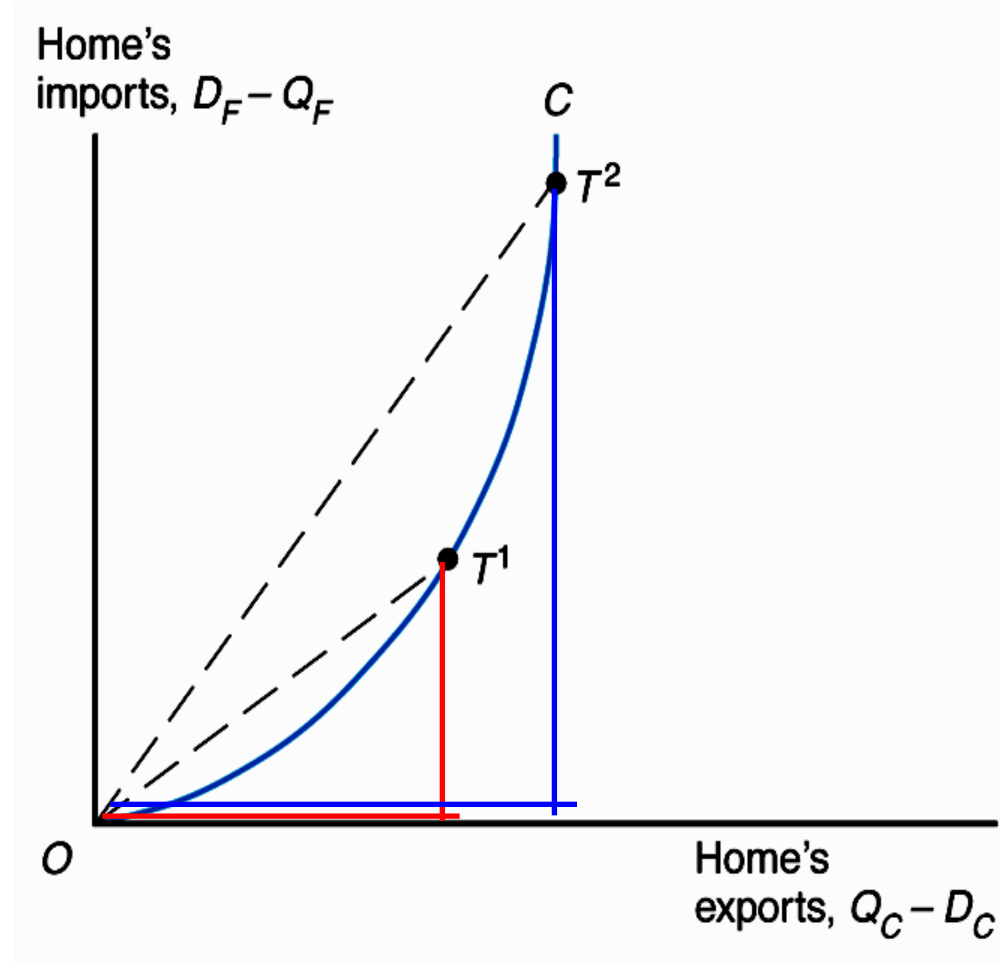


# Offer curves

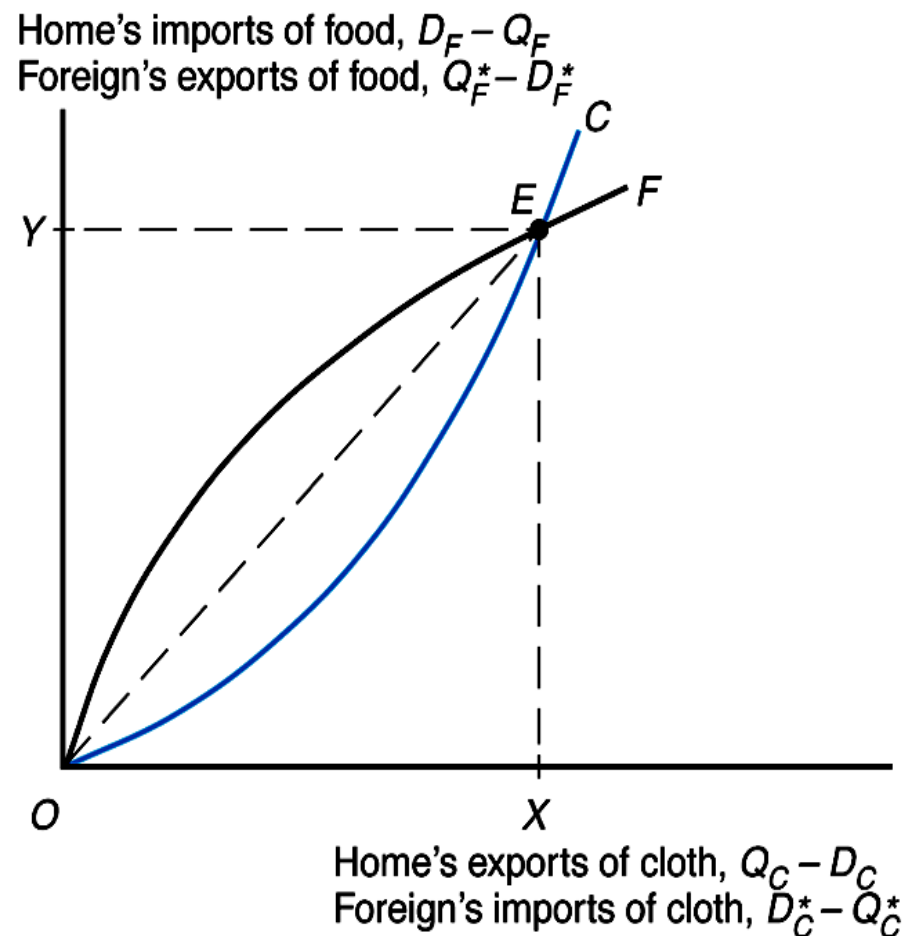
- You should have seen offer curves analysis at least once. Here it is.
- An offer curve traces out the how the trade triangle changes as world prices change.
- Now plot in import-export space ...



- Not to scale, but the 2 trade triangles show how trade rises as the rel. price of Home exports rises.
- Same for Foreign, but upside down.
- Combining ...



- Home and Foreign offer curve together lets us see the eq'm ToT in another diagram.
- A Home tariff shifts the Home offer curve inward and so improves Home ToT.
- Just another technique; I don't find it useful.



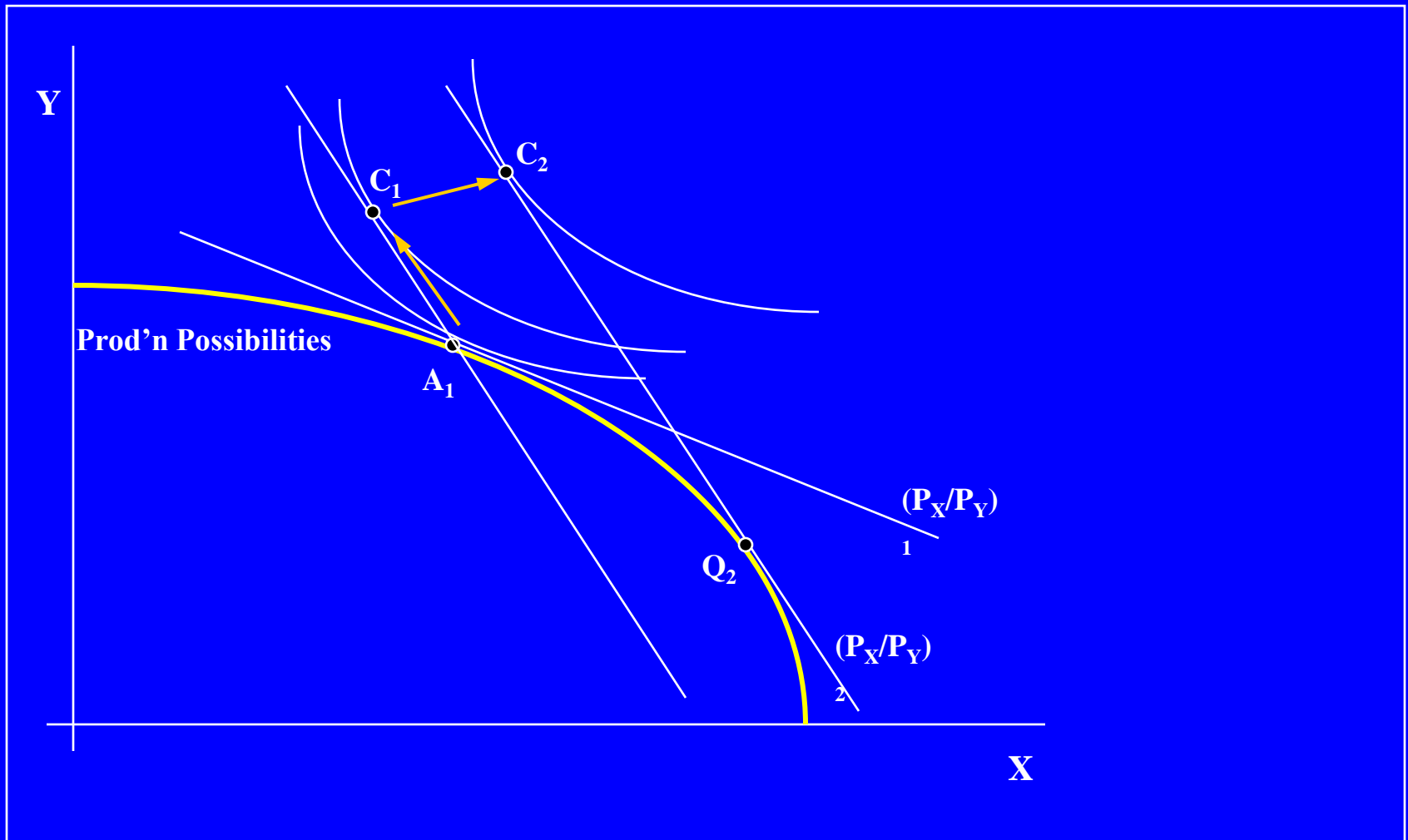
- Following slides from John M. Veitch, Fall 99 course at Berkeley using K&O.
- <http://haas.berkeley.edu/Courses/Fall1999/BA187/notes.htm>



# Sources of Gains from Trade

- Can break a country's gains from trade into two distinct parts.
  - **Gains from Exchange (Consumption Gains)**
    - Assume trade changes the relative price but the country continues to produce at the autarchy equilib. Point A.
    - Nation still experiences a gain in welfare due to price change measured by move from point A to  $C_1$ .
  - **Gains from Specialization (Production Gains)**
    - The change in relative price leads the country to change production from Point A to Point  $Q_1$ .
    - Nation experiences an additional gain in welfare due to prod'n specialization measured by move from point  $C_1$  to  $C_2$ .
- This is similar to the substitution/wealth effect analysis of a price change in microeconomics.

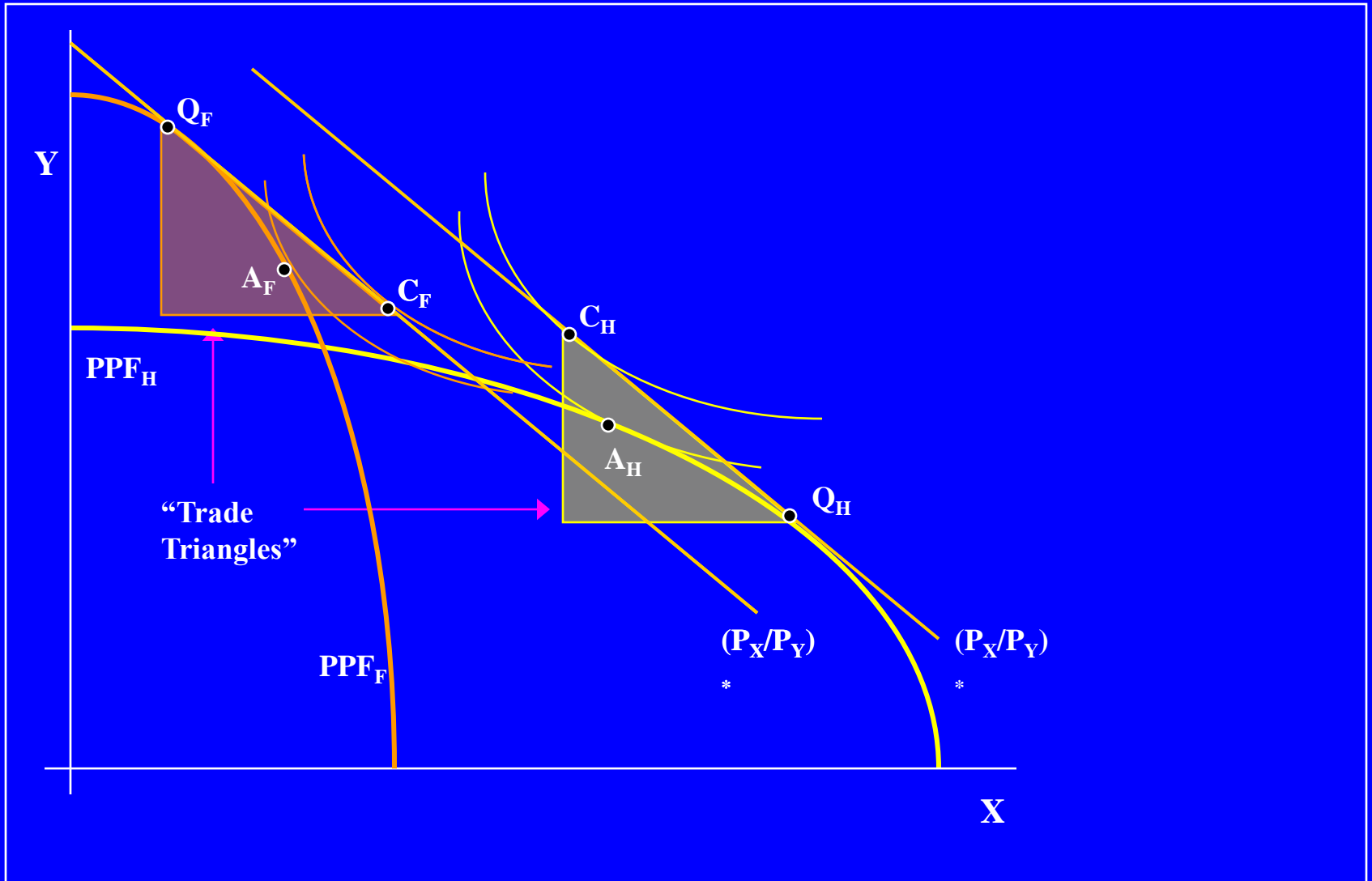
# Sources of Gains from Trade



# Determining Trade Equilibrium

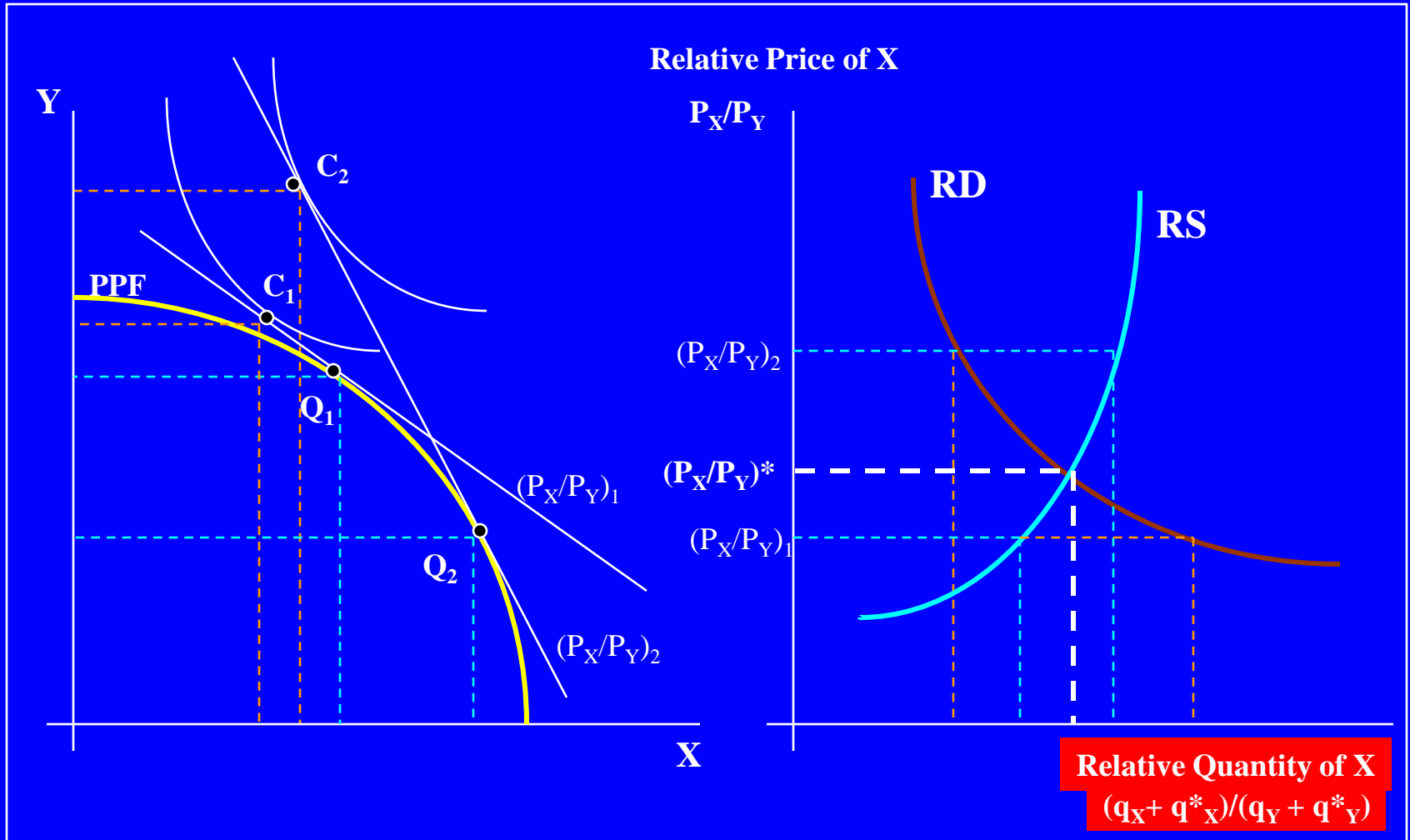


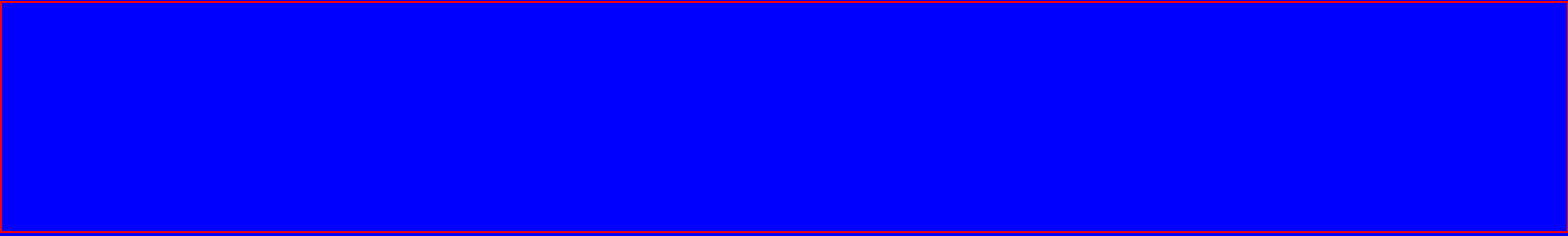
# Determining Trade Equilibrium



- Alternative, and easier way, to visualize equilibrium terms of trade is to use relative demand and supply.
- **Relative Demand**
  - Increase in  $P_X/P_Y$ , relative price of Good X, results in relative fall in demand for Good X relative to Good Y.
  - Corresponds to move from  $C_1$  to  $C_2$  on next slide.
- **Relative Supply**
  - Increase in  $P_X/P_Y$ , relative price of Good X, results in movement along the PPF of each country from  $Q_1$  to  $Q_2$ .
  - Result is a relative increase in prod'n of Good X relative to Good Y.

# Deriving Relative Demand & Supply





<u>Year</u>	<u>1972</u>	<u>1974</u>	<u>1976</u>	<u>1978</u>	<u>1980</u>	<u>1982</u>	<u>1984</u>	<u>1986</u>	<u>1988</u>
Developing Countries									
Oil Exporters	100	258	259	248	412	456	412	206	192
Other	100	99	94	96	91	84	87	87	92
Developed Countries	100	87	88	89	80	80	81	90	91

**Terms of Trade = Export Unit Value / Import Unit Value, 1972 = 100**

**Source:** IMF, *International Financial Statistics*

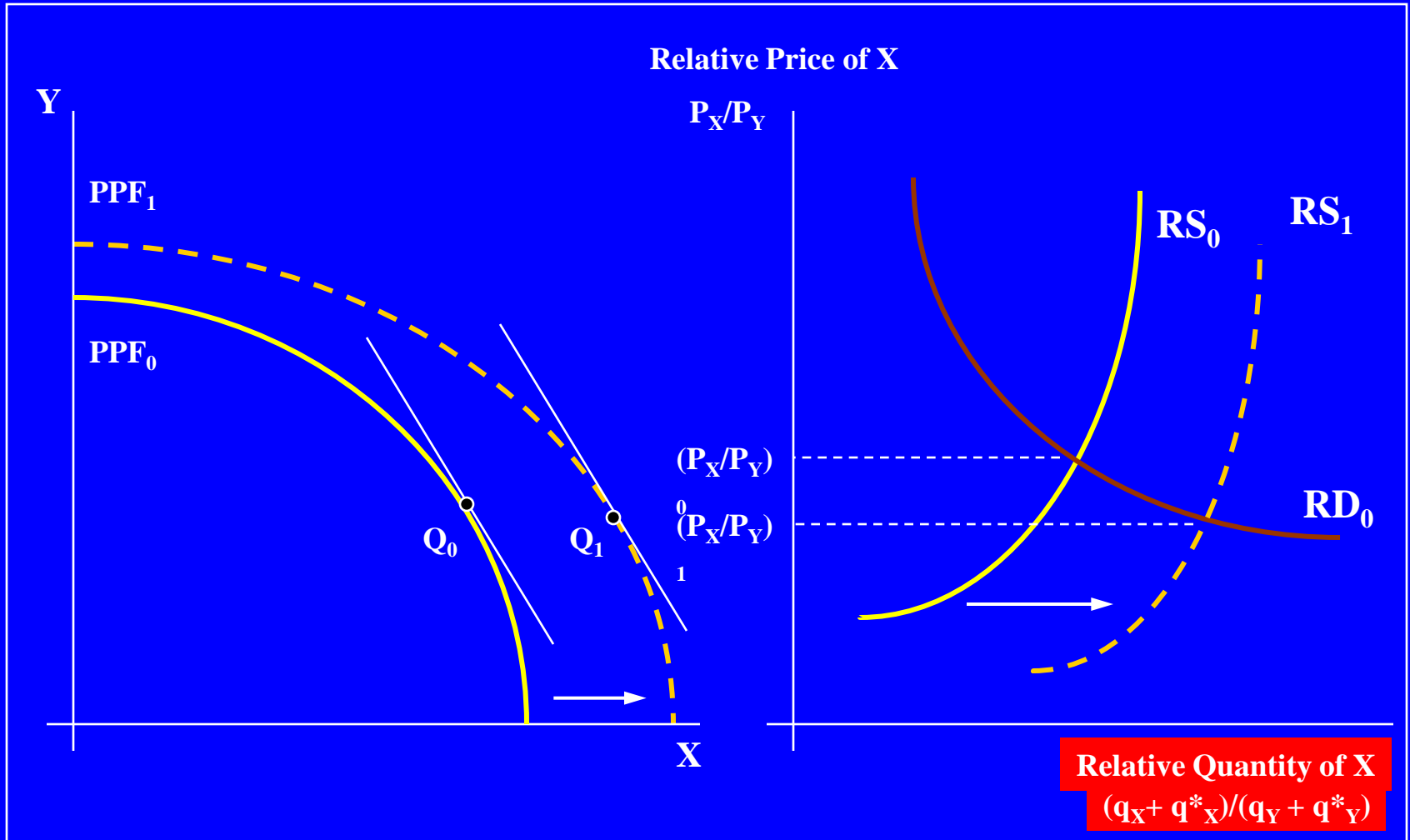


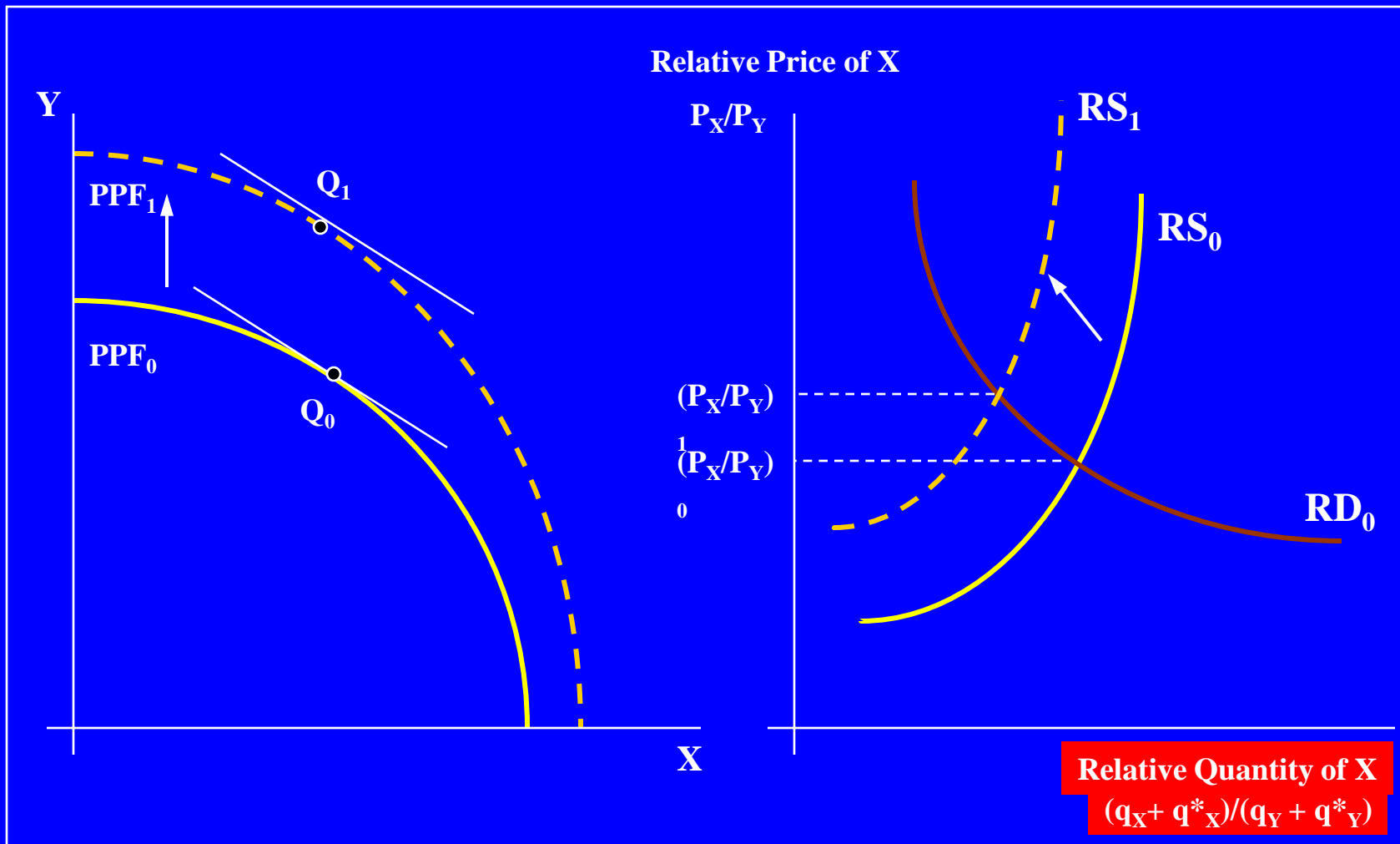




- Economic growth shifts out a nation's PPF.
  - Trade effects occur because growth often biased, shifts PPF out more in one good than the other.
- **Export-biased Growth**
  - Growth that expands a nation's PPF more towards its export good.
- **Import-biased Growth**
  - Growth that expands a nation's PPF more towards its import good.

# Export-Biased Growth and Trade

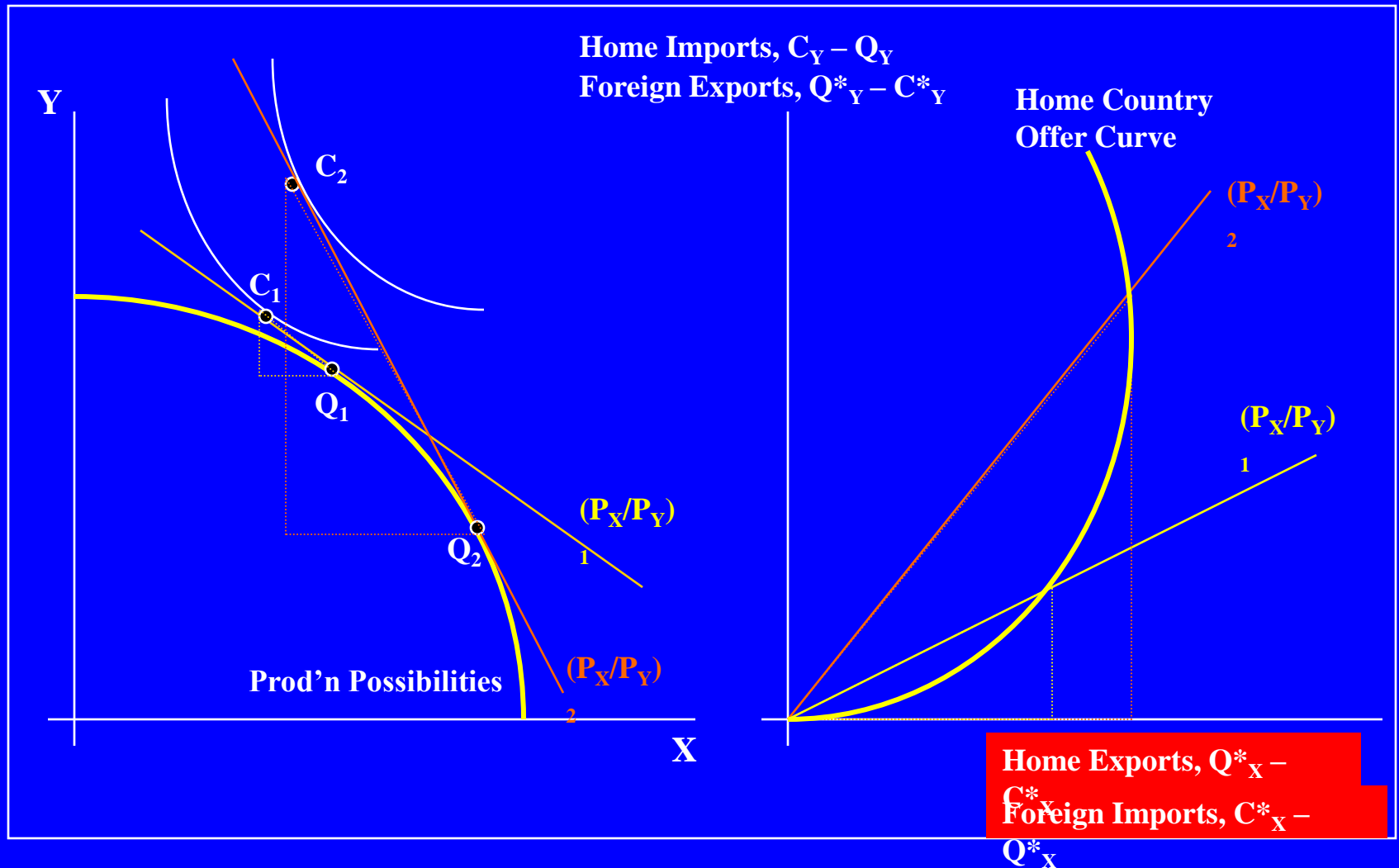




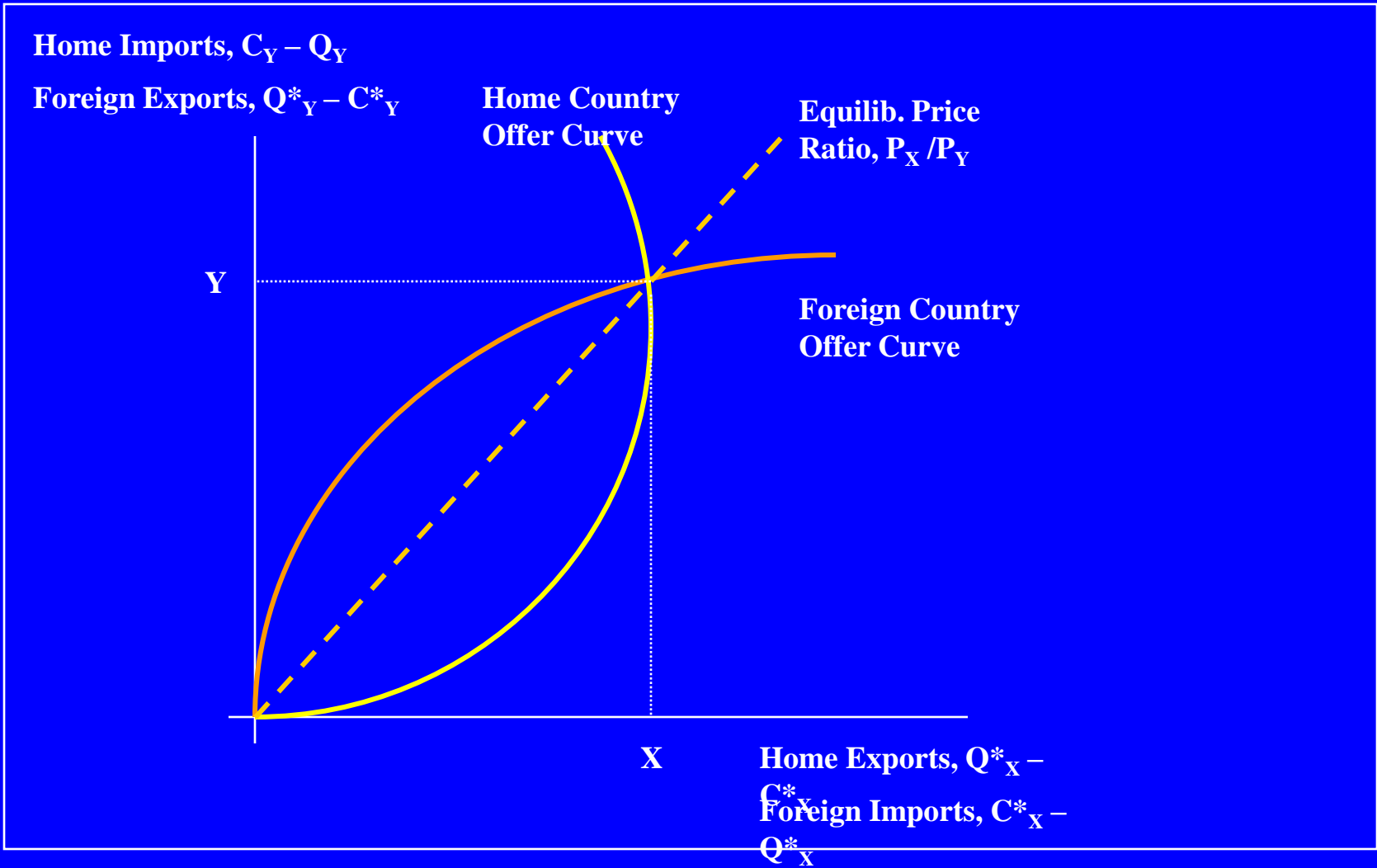
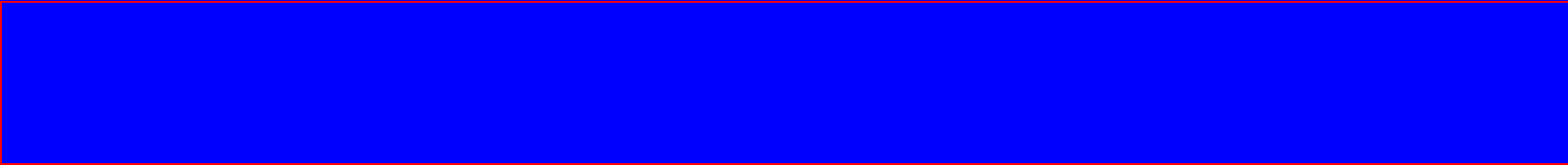
- Export-biased growth tends to worsen a nation's terms of trade benefiting the rest of the world.
- Import-biased growth tends to improve a nation's terms of trade at the rest of the world's expense.
- Immiserizing Growth
  - 1950's belief that export-biased growth could worsen terms of trade so much that nation worse off than if had not grown at all.
  - Requires extreme conditions unlikely to hold in real world (large shift, steep RS & RD curves)

- Offer Curve analysis focuses explicitly on a country's exports and imports at any terms of trade.
  - Use PPF/Utility function diagram to generate difference between consumption and prod'n for each good at any relative price (its trade triangle at each relative price).
  - Offer Curve Diagram summarizes these trade triangles with relative price equal to slope of ray from origin.
- Can construct an Offer Curve for each country. Point at which they cross is where trade is balanced, i.e. trade triangles are equal.
- Can use to analyze effects of growth or trade policy as alternative to relative demand/supply approach.

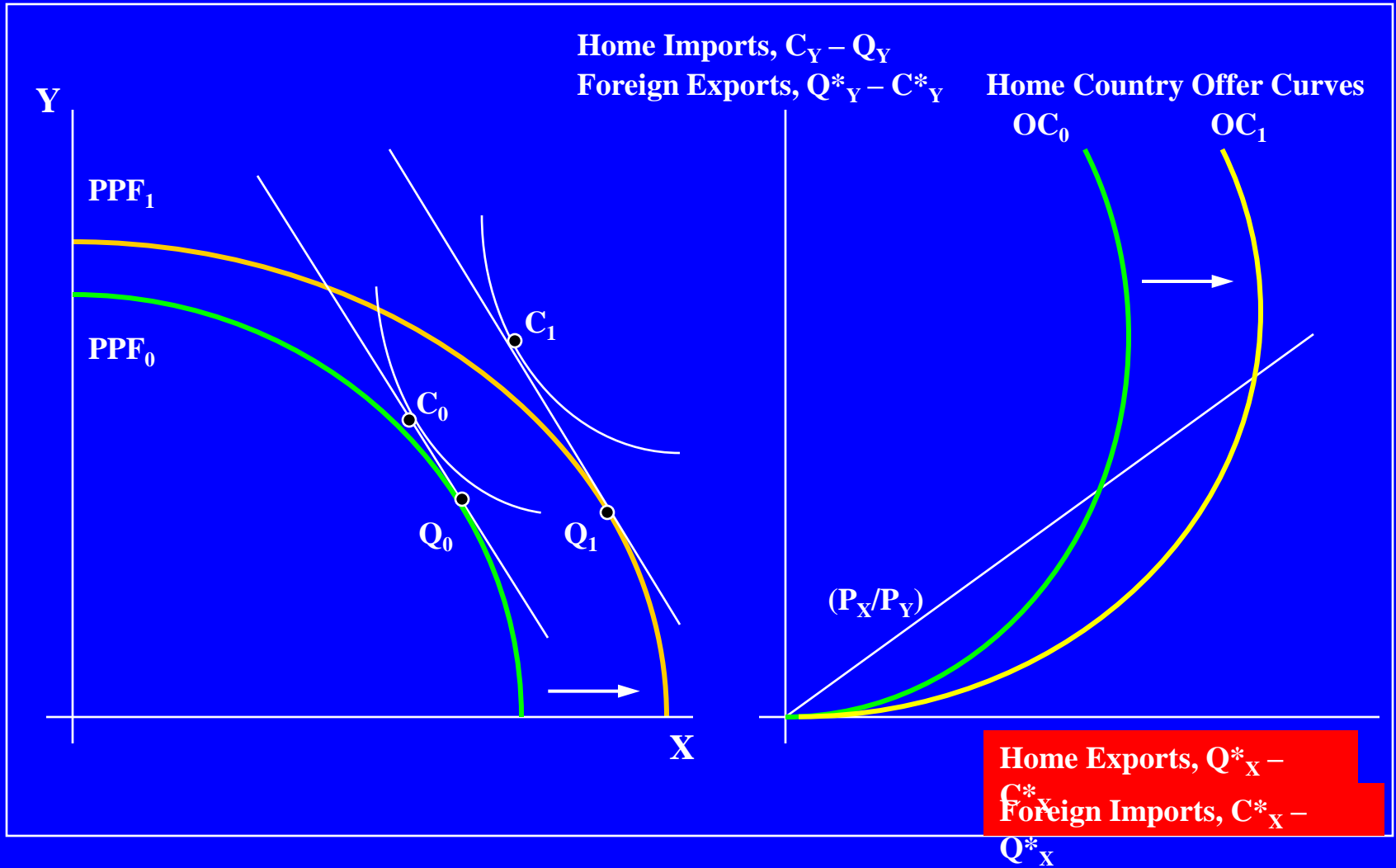
# Deriving An Offer Curve







# Export-Biased Growth and Trade II



# Export-biased Growth & Trade II

