International Economics
Fall 2011
Standard Trade Model

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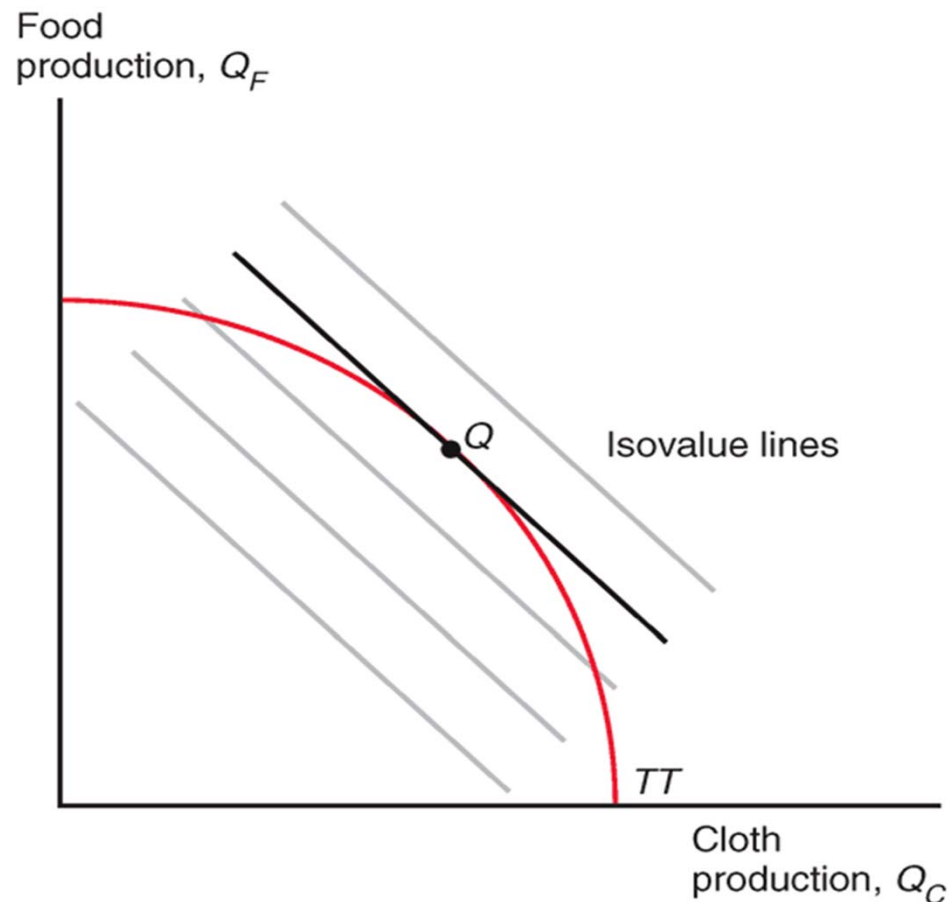
The Ring of Fire

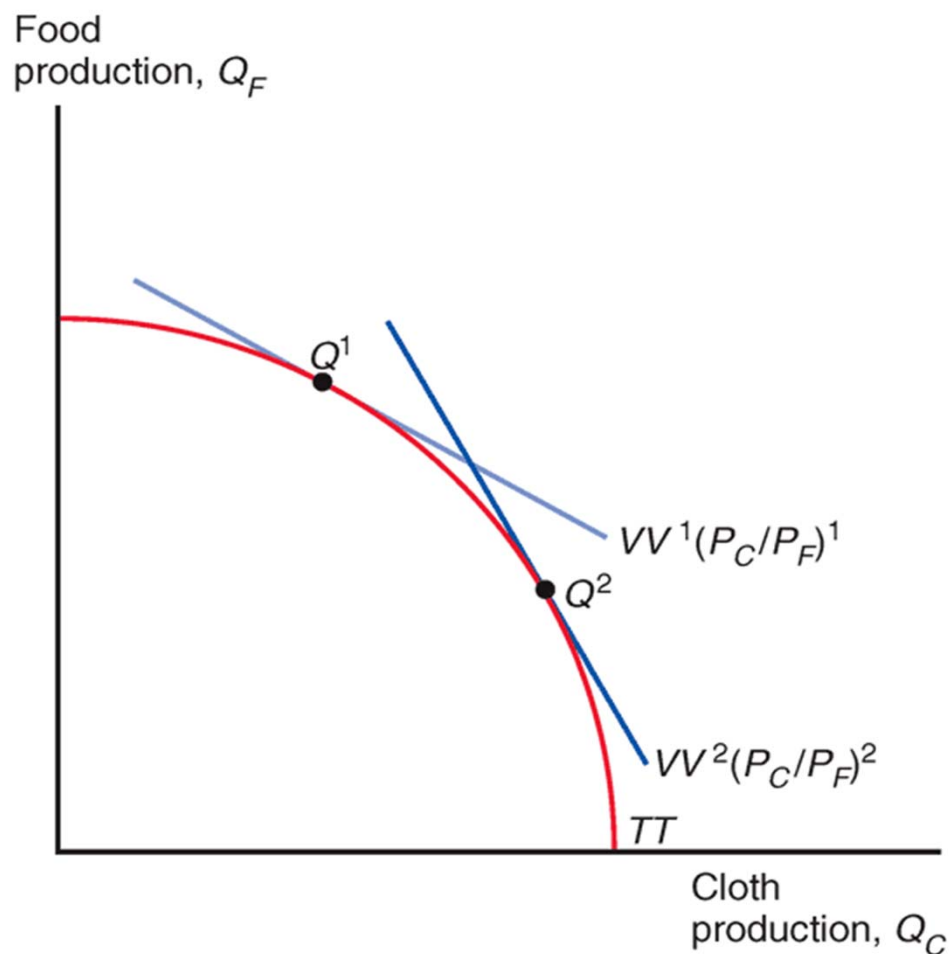Source: Reuters EcoWin

Today's Plan

- Derivation of relative supply curve (RS)

- Derivation of relative demand curve (RD)

- Terms of trade (TOT) analysis
    - Basic concept of TOT
    - Applications: biased growth

Derivation of Relative Supply Curve (RS)

Food production, Q_F
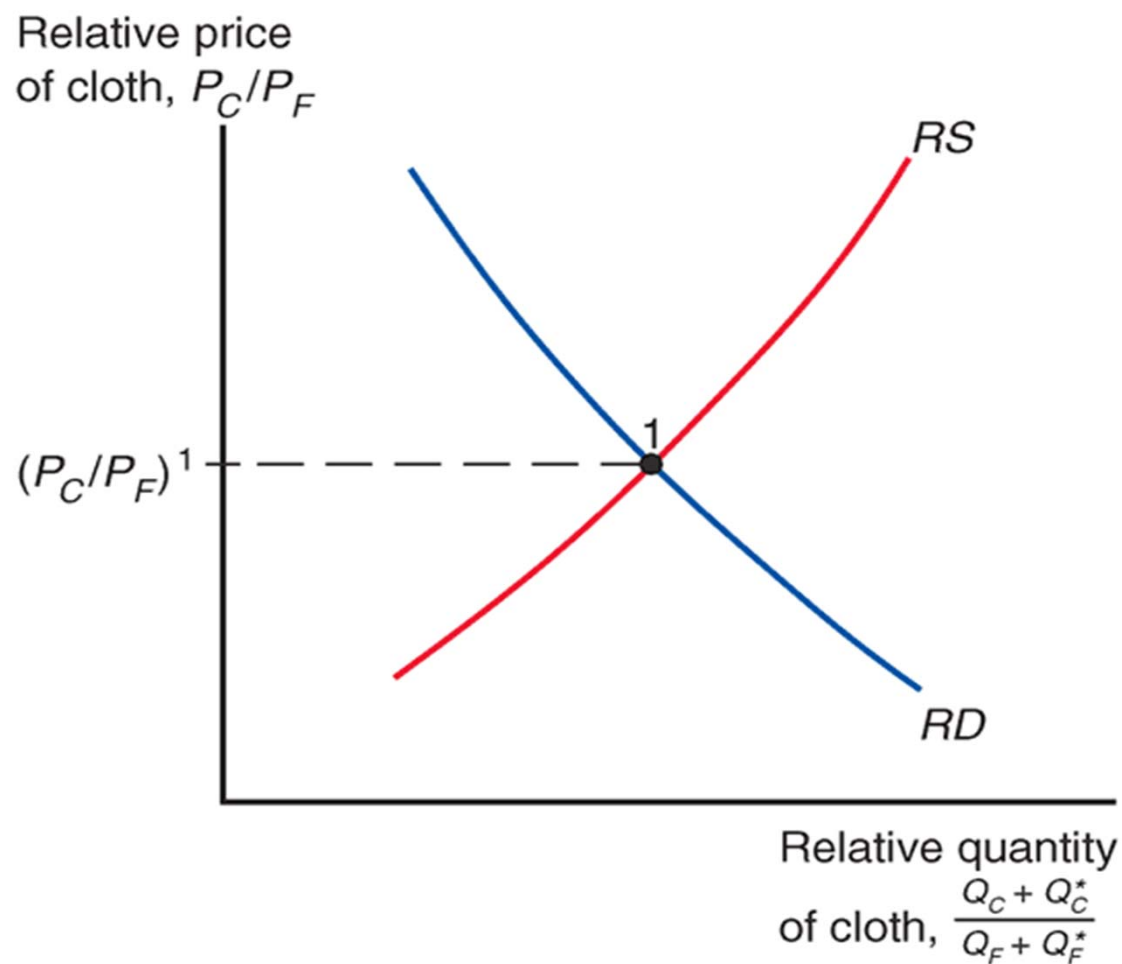
Isovalue lines

Q

TT

Cloth production, Q_C

- TT is PPF

- Isovalue lines represent different budget constraint, V, value of the total production, also the maximum an economy can afford to consume

- Again, the slope of the isovalue line is relative price of cloth to food, in negative term

- The tangent point Q is the optimal achievable production combination under certain budget constraint, V, and relative price between cloth to food

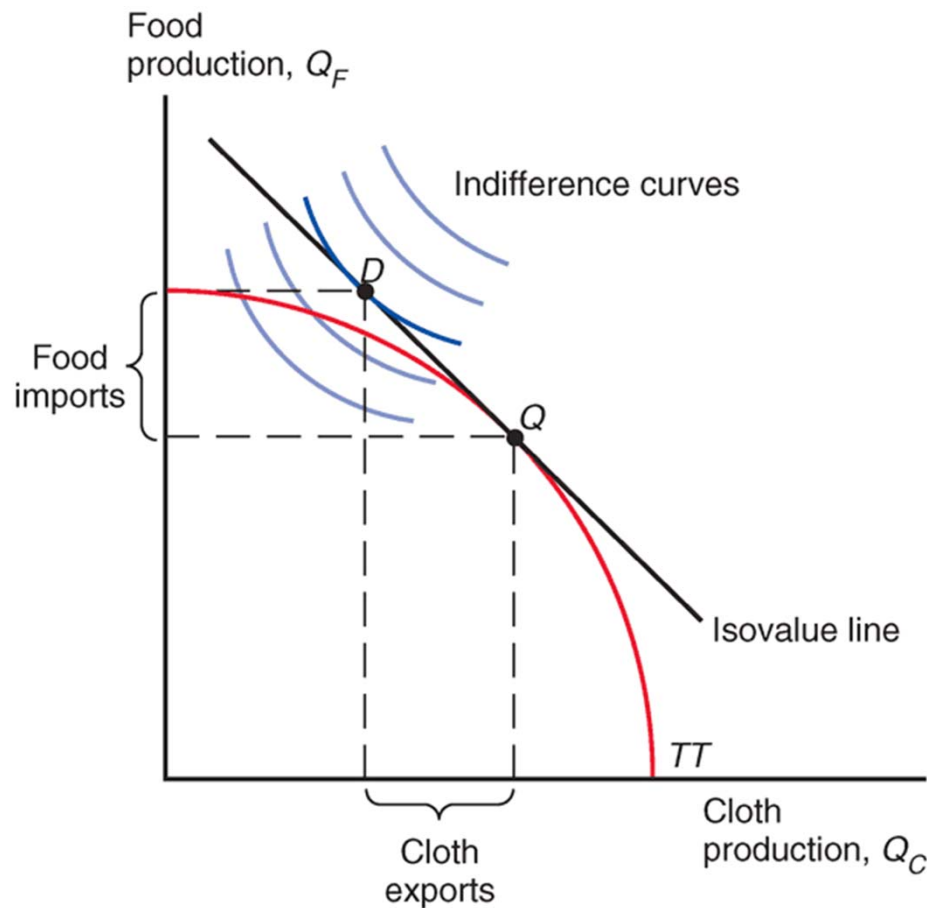- As relative price changes, Q also changes

Derivation of RS

Food production, Q_F

- As relative price of cloth increases from VV1 to VV2, production combination changes from Q1 to Q2

- Q2 corresponds to a larger production of cloth relative to food than under Q1. In other words, the relative quantity of cloth supplied increases

- This gives us an upward sloping supply curve, i.e, a positive correlation between relative price and relative quantity of cloth
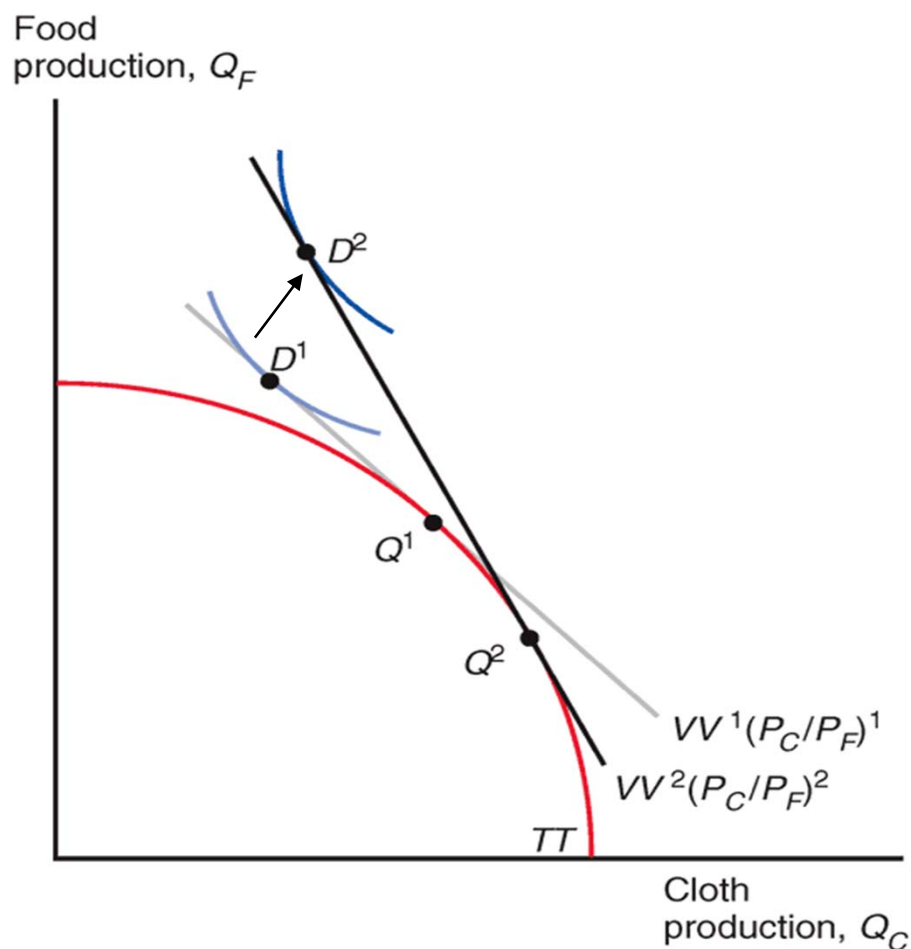
$VV^1(P_C/P_F)^1$

Q^2

$VV^2(P_C/P_F)^2$

TT

Cloth production, Q_C

Derivation of RS

Similar to regular supply curve, relative supply curve, RS (in red), is upward sloping

Derivation of Relative Demand Curve (RD)

Food production, Q_F

Indifference curves

D

Food imports

Q

Isovalue line

TT

Cloth exports

Cloth production, Q_C
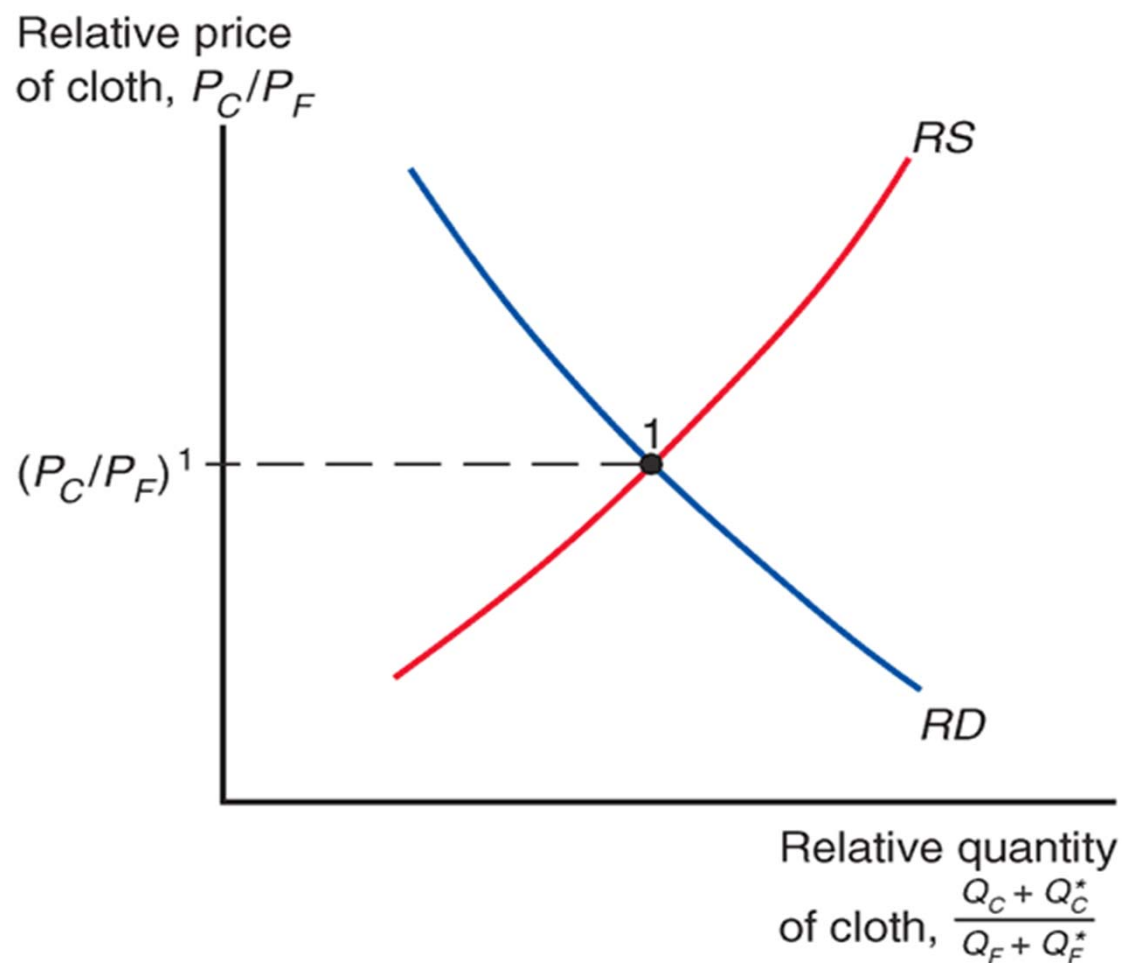
- The economy produces at Q, and consume at D

- The economy produces more cloth than it consumes → an exporter of cloth; It produces less food than it consumes → an importer of food

- Point D is where the isovalue line is tangent to the highest possible indifference curve. In other words, at point D, consumers achieve the maximum utilities from consumption within budget constraint, V.

Derivation of RD

Food production, Q_F

D^2

D^1

Q^1

Q^2

$VV^1(P_C/P_F)^1$

$VV^2(P_C/P_F)^2$

TT

Cloth production, Q_C

• When there is a relative price increases from VV1 and VV2, production changes from Q1 to Q2. Also, the economy's consumption changes from D1 to D2

• D2 represents a bigger consumption of both food and cloth (total welfare improves, with higher level indifference curve), but food consumption increases more than cloth consumption.

•In other words, the relative quantity of cloth demanded decreases as relative price of cloth increases.

• This gives us a downward sloping relative demand curve.

Derivation of RD

Relative price
of cloth, P_C/P_F

RS

$(P_C/P_F)^1$ - - - - - - - - - 1

RD

Relative quantity
of cloth, $\dfrac{Q_C + Q_C^{\star}}{Q_F + Q_F^{\star}}$

Relative demand curve,
RD (in blue), is
downward sloping,
similar to regular
demand curve.

The world market clears
at point 1 when RS and
RD intersect.

TOT Analysis

- **Basic concept**
  - Terms of trade is defined as the price of the good a country initially exports divided by the price of the good it initially imports, i.e.,

    TOT=price of exports / price of imports

  - A rise in TOT increases a country's welfare, while a decline in TOT reduces its welfare.

  - In other words, it increases a country's welfare to sell its own goods at higher prices and to buy imported goods at lower prices, relatively.
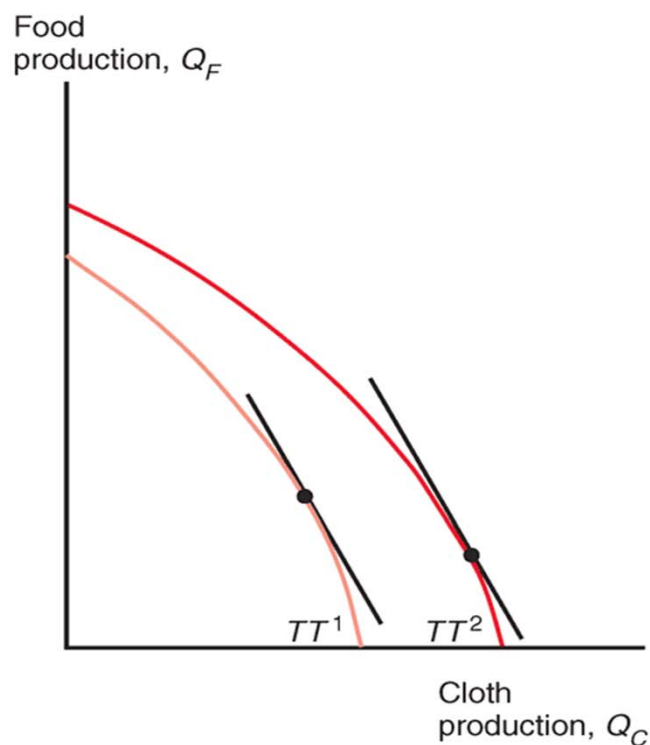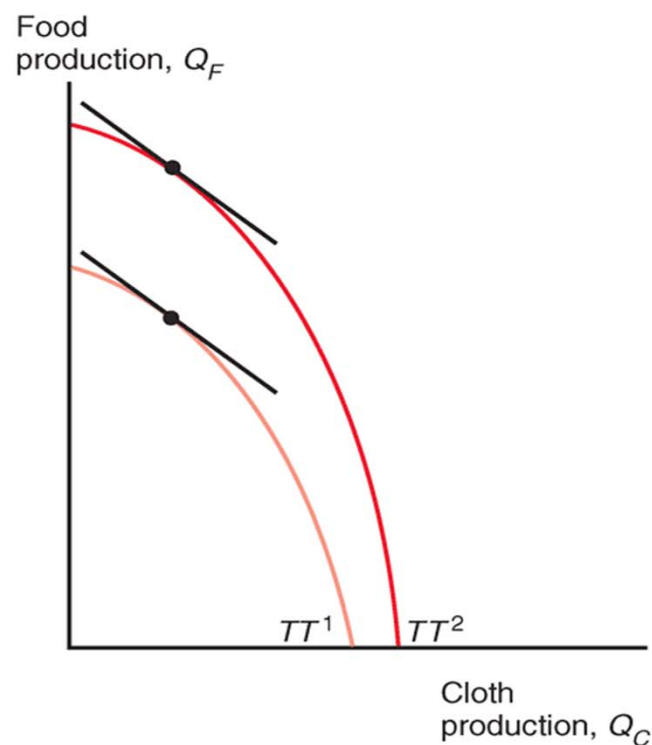
Economic Growth and TOT

- Is economic growth always good for a country? Can the country's welfare be hurt as a result of growth?

- We look at this question from the perspective of how economic growth could change a country's terms of trade (TOT).

Biased Growth

- A country COULD be hurt by economic growth if the growth is biased. That's when the PPF shifts out more in one direction than in the other.
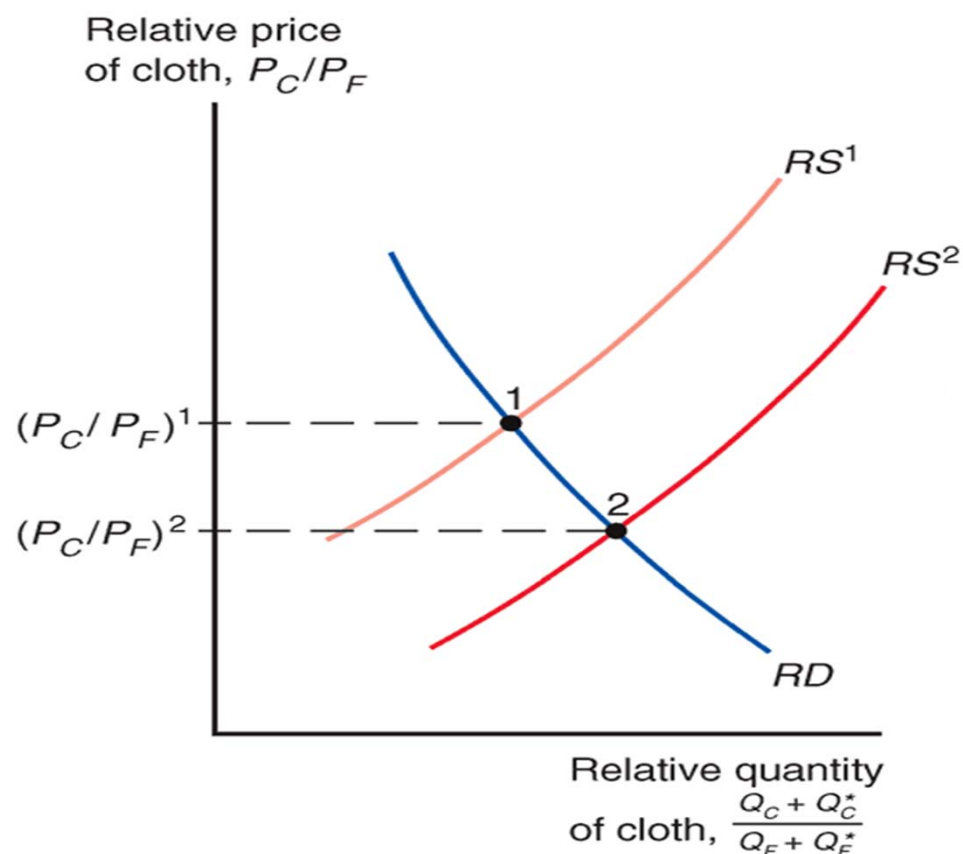

(a) Growth biased toward cloth

(b) Growth biased toward food

Biased Growth

Relative price of cloth, P_C/P_F

RS^1

RS^2

$(P_C/P_F)^1$

$(P_C/P_F)^2$

1

2

RD

Relative quantity of cloth, $\dfrac{Q_C + Q_C^*}{Q_F + Q_F^*}$

(a) Cloth-biased growth

Biased growth in cloth at home country increases relative supply of cloth in the world, resulting in outward shift of RS of cloth, and a lower relative price of cloth.

What is the impact of such growth on home country and foreign country's TOT?

Biased Growth and TOT

- **TOT of home country**
  - ☐ Relative price of cloth will decrease
  - ☐ Its effect on TOT much depends on
    - Which good home country initially imports/exports
      - ☐ If home country is an exporter of cloth, home country will suffer worsening TOT.
      - ☐ If home country is an importer of cloth initially, home country's TOT will actually improve
    - Home country's relative size compared to the rest of the world (ROW): big enough to have an effect on world RS curve?

Biased Growth and TOT

- **TOT of foreign country**
  - Again, its effect on TOT much depends on
    - Which good home country initially imports/exports
      - If foreign country is initially an importer of cloth, then biased growth of cloth in home country is beneficial to foreign country. It lowers the price of imports, improving foreign country's TOT.
      - If foreign country is initially an exporter of cloth, then biased growth of cloth in foreign country will <u>increase competition</u>, lowering relative price of cloth, worsening TOT in foreign country.

Biased Growth and TOT: Applications

- China's export –biased growth in manufacturing goods
  - China is a large exporter of manufacturing (mfg) goods, fast growth in mfg lower relative price of its relative price in the world market, worsening its own TOT
  - Lower price of mfg goods improves US TOT, and beneficial to the US economy, who are the largest consumers of such goods

- India's fast growth in IT industry
  - India's IT industry is in direct competition with US's IT industry, which is also the industry that US enjoys comparative advantage. It increases the RS of IT products, lowering the export prices of US technologies. Hurting the US TOT, and potentially benefiting India

Biased Growth: Overall Assessment

- This is a more tricky question, TOT analysis is just one aspect: biased growth worsens a country's TOT, welfare decreases

- Export-biased growth often reflects exporter's comparative advantage, and exporter country gains from world trade thanks to specialization, better allocation of its resources, and larger output, i.e., welfare improves.

- In reality, the net effect (the net sum of the two effects above) is usually positive, as demonstrated by the development experience of many export-led countries, especially those in Asia

- If the overall effect turns out to be negative, then the country suffers ***immiserizing growth***, a term invented by Jagdish Bhagwati. But such growth is more of a theory than reality.

For the next class…

- Read Chapter 6: Economies of Scale, Imperfect Competition and International Trade
- For 9th ed. textbook, read p167-175, and p.185-201