Introduction

- Previous trade theories have emphasized specific sources of comparative advantage which give rise to international trade:
  - Differences in labor productivity (Ricardian model)
  - Differences in resources (specific factors model and Heckscher-Ohlin model)
- The standard trade model is a general model of trade that admits these models as special cases.

A Standard Model of a Trading Economy

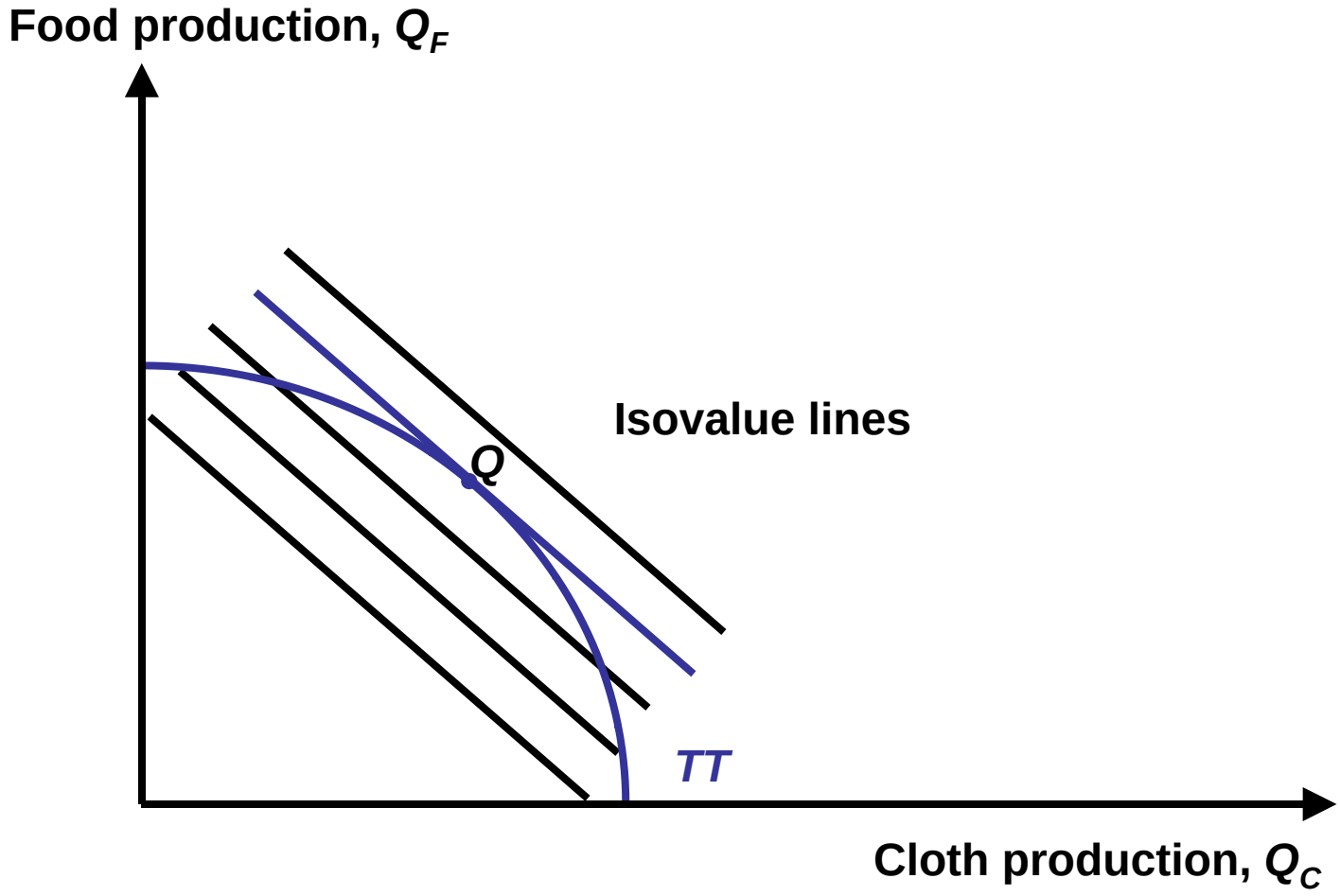
- The **standard trade model** is built on four key relationships:
  - Production possibility frontier and the relative supply curve
  - Relative prices and relative demand
  - World relative supply and world relative demand
  - **Terms of trade** and national welfare

A Standard Model of a Trading Economy

- Production Possibilities and Relative Supply
  - Assumptions of the model:
    - Each country produces two goods, food (F) and cloth (C)
    - Each country's production possibility frontier is a smooth curve (TT)
  - The point on its production possibility frontier at which an economy actually produces depends on the price of cloth relative to food, P_C/P_F.
  - **Isovalue lines**
    - Lines along which the market value of output is constant

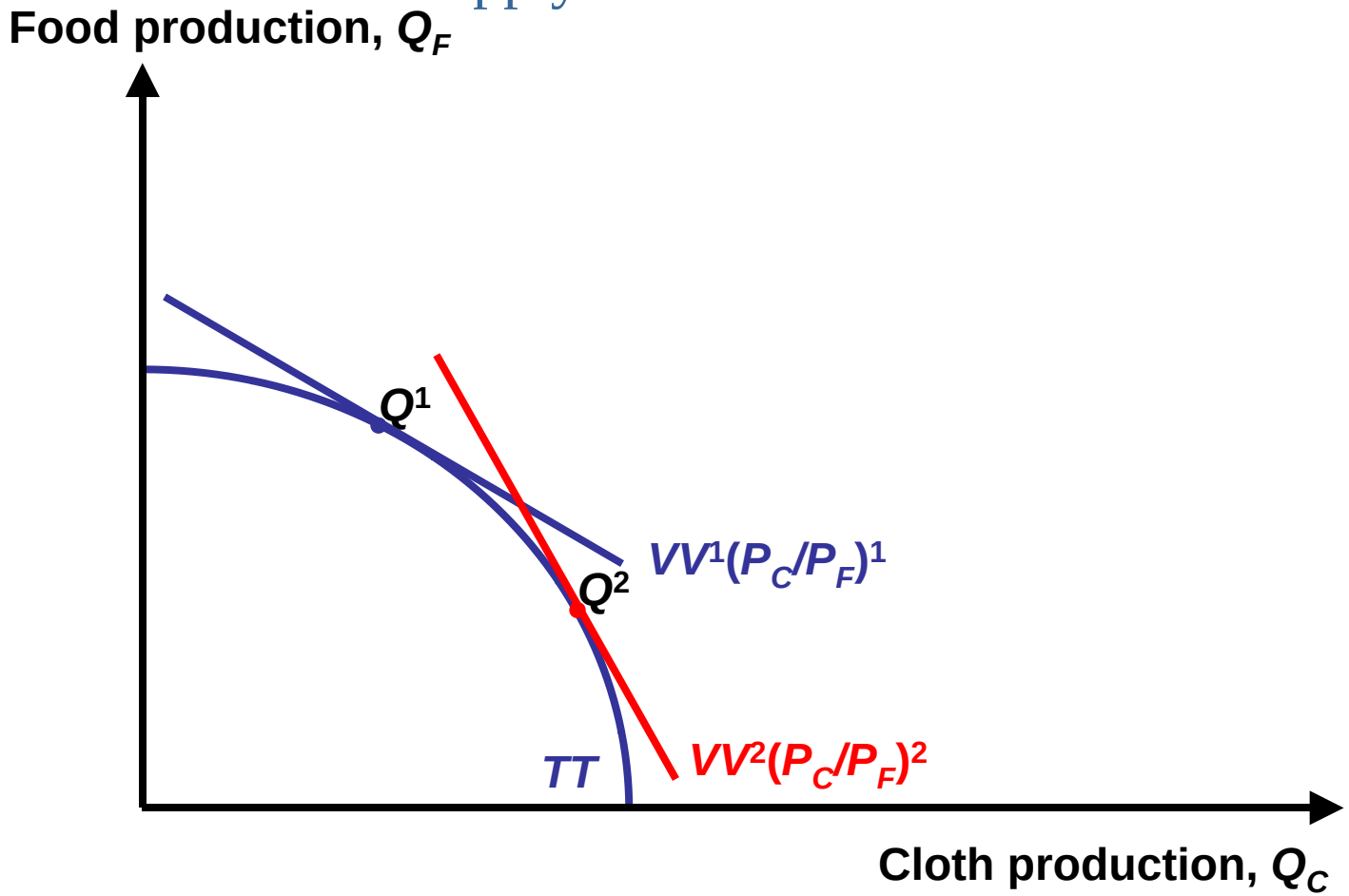
A Standard Model of a Trading Economy

Figure 5-1: Relative Prices Determine the Economy's Output



A Standard Model of a Trading Economy

Figure 5-2: How an Increase in the Relative Price of Cloth Affects Relative Supply



A Standard Model of a Trading Economy

- Relative Prices and Demand
  - The value of an economy's consumption equals the value of its production:

$$P_C Q_C + P_F Q_F = P_C D_C + P_F D_F = V$$

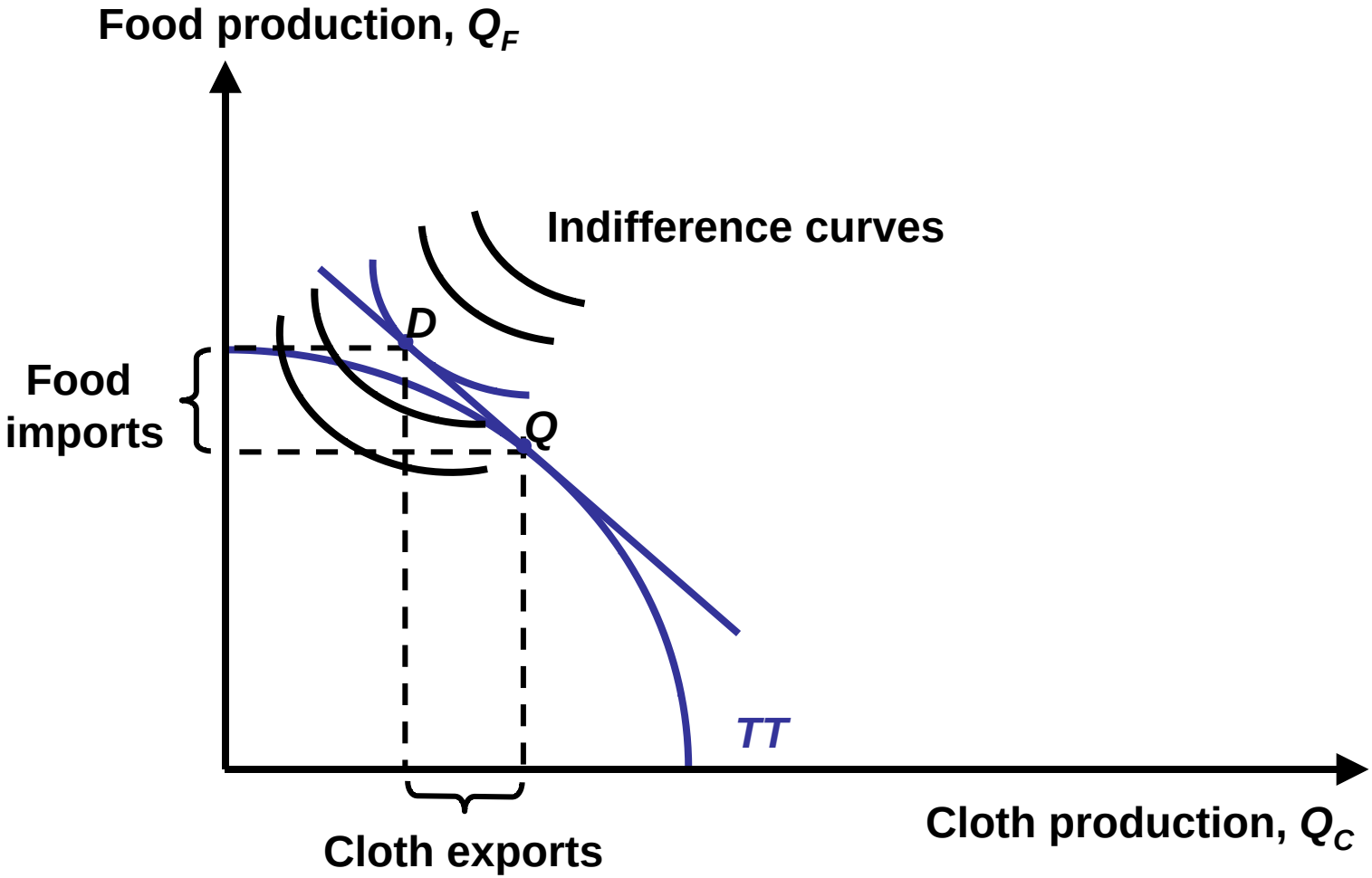
  - The economy's choice of a point on the isovalue line depends on the tastes of its consumers, which can be represented graphically by a series of **indifference curves**.

A Standard Model of a Trading Economy

- **Indifference curves**
  - Each traces a set of combinations of cloth (C) and food (F) consumption that leave the individual equally well off
  - They have three properties:
    - Downward sloping
    - The farther up and to the right each lies, the higher the level of welfare to which it corresponds
    - Each gets flatter as we move to the right

A Standard Model of a Trading Economy

Figure 5-3: Production, Consumption, and Trade in the Standard Model

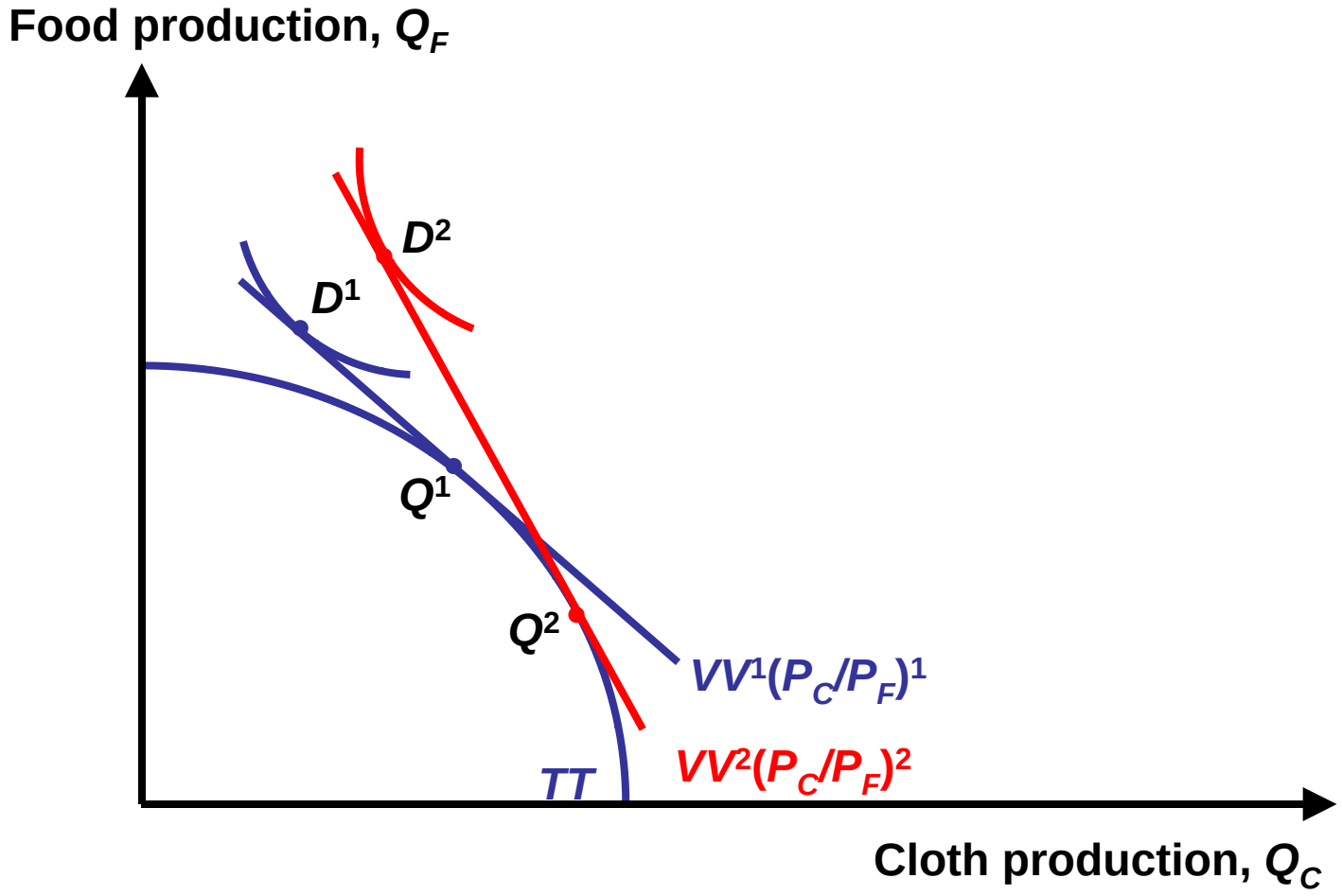


A Standard Model of a Trading Economy

- If the relative price of cloth, P_C/P_F , increases, the economy's consumption choice shifts from D^1 to D^2.
  - The move from D^1 to D^2 reflects two effects:
    - Income effect
    - Substitution effect
  - It is possible that the income effect will be so strong that when P_C/P_F rises, consumption of both goods actually rises, while the ratio of cloth consumption to food consumption falls.

A Standard Model of a Trading Economy

Figure 5-4: Effects of a Rise in the Relative Price of Cloth



A Standard Model of a Trading Economy

- The Welfare Effect of Changes in the Terms of Trade
  - **Terms of trade**
    - The price of the good a country initially exports divided by the price of the good it initially imports.
    - A rise in the terms of trade increases a country's welfare, while a decline in the terms of trade reduces its welfare.

A Standard Model of a Trading Economy

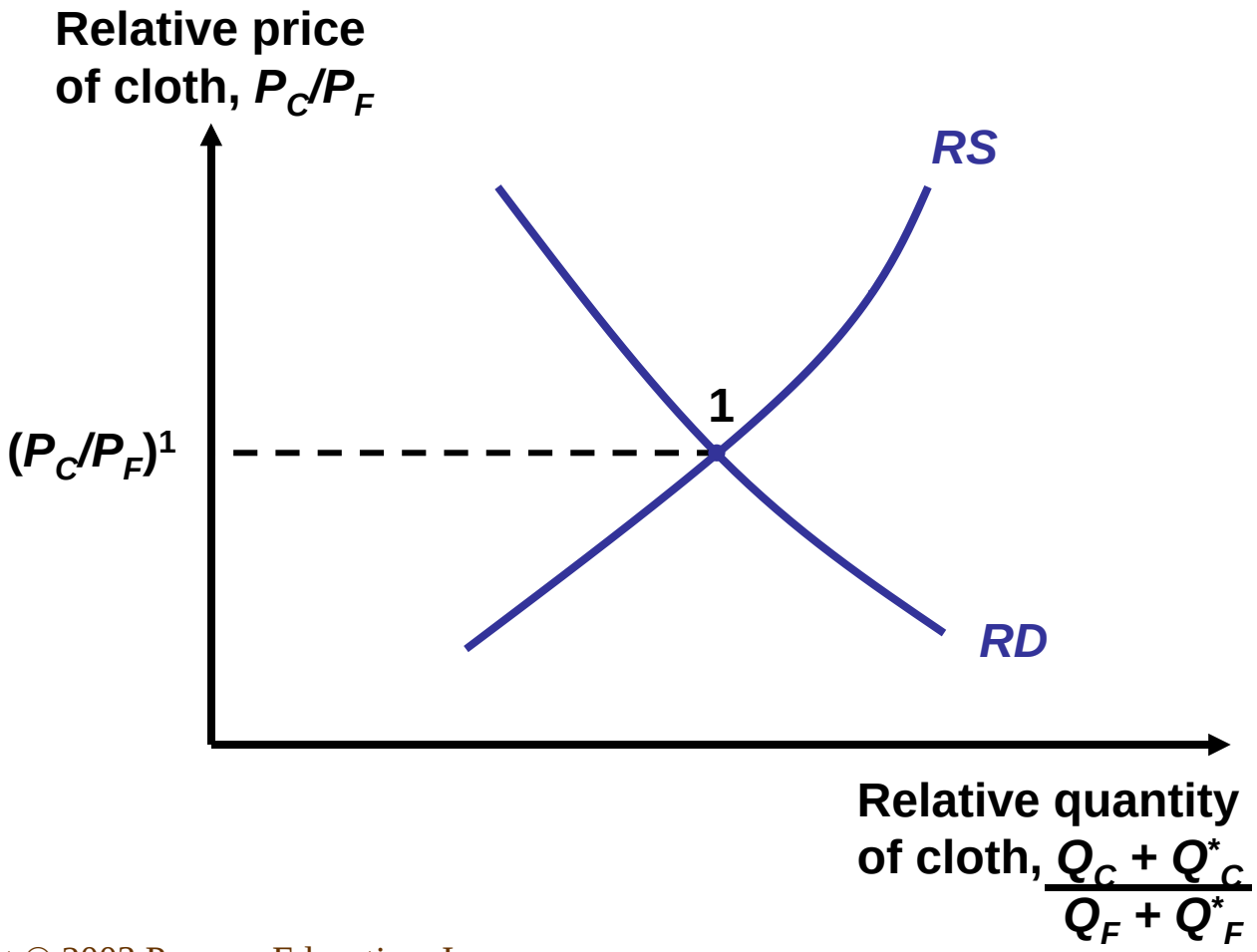
- Determining Relative Prices
  - Suppose that the world economy consists of two countries:
    - Home (which exports cloth)
      - Its terms of trade are measured by P_C/P_F
      - Its quantities of cloth and food produced are Q_C and Q_F
    - Foreign (which exports food)
      - Its terms of trade are measured by P_F/P_C
      - Its quantities of cloth and food produced are Q^*_C and Q^*_F

A Standard Model of a Trading Economy

- To determine P_C/P_F, one must find the intersection of world relative supply of cloth and world relative demand.
  - The world relative supply curve (*RS*) is upward sloping because an increase in P_C/P_F leads both countries to produce more cloth and less food.
  - The world relative demand curve (*RD*) is downward sloping because an increase in P_C/P_F leads both countries to shift their consumption mix away from cloth toward food.

A Standard Model of a Trading Economy

Figure 5-5: World Relative Supply and Demand



A Standard Model of a Trading Economy

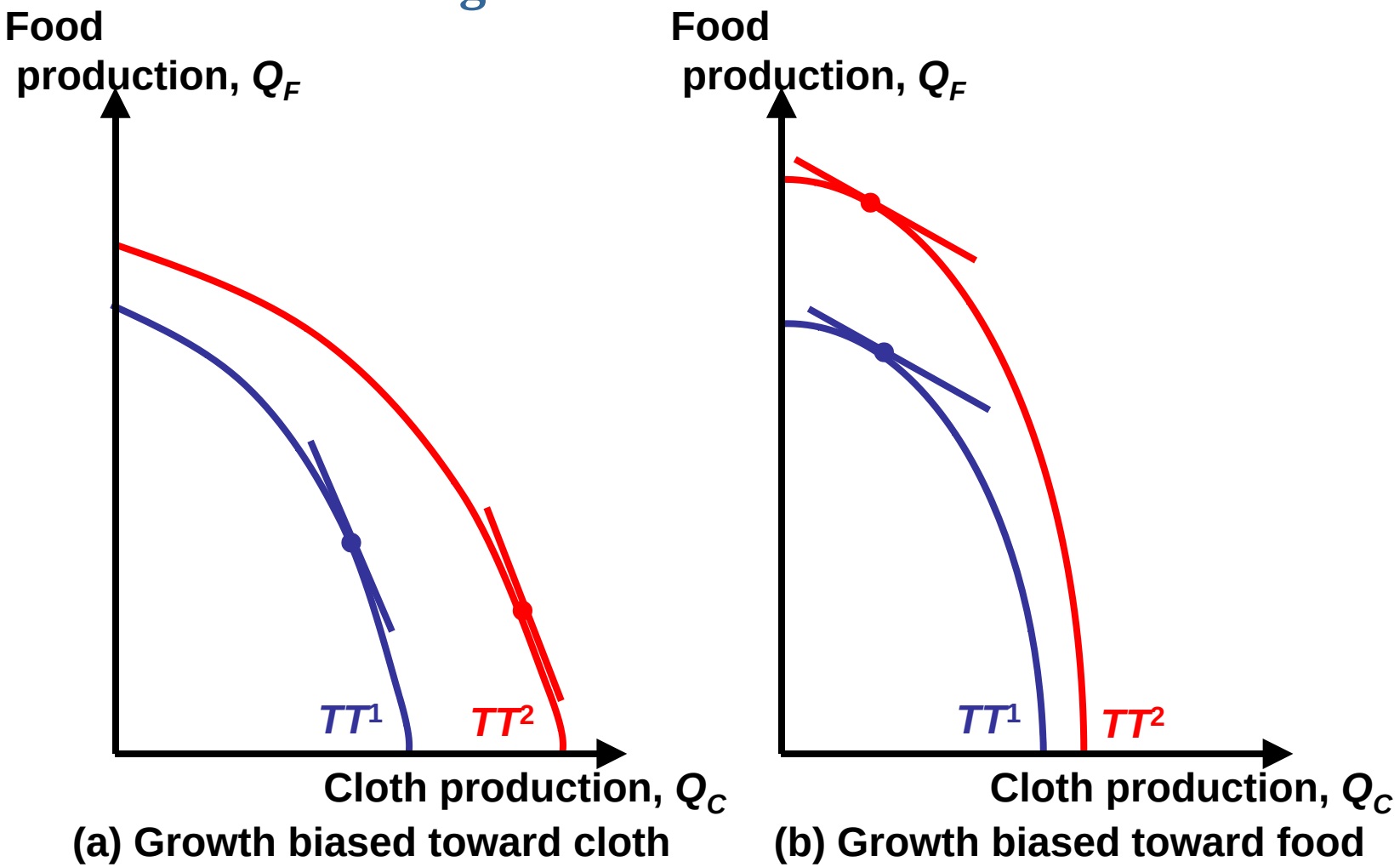
- Economic Growth: A Shift of the *RS* Curve
  - Is economic growth in other countries good or bad for our nation?
    - It may be good for our nation because it means larger markets for our exports.
    - It may mean increased competition for our exporters.
  - Is growth in a country more or less valuable when that nation is part of a closely integrated world economy?
    - It should be more valuable when a country can sell some of its increased production to the world market.
    - It is less valuable when the benefits of growth are passed on to foreigners rather than retained at home.

A Standard Model of a Trading Economy

- Growth and the Production Possibility Frontier
  - Economic growth implies an outward shift of a country's production possibility frontier (*TT*).
  - **Biased growth**
    - Takes place when *TT* shifts out more in one direction than in the other
    - Can occur for two reasons:
      - Technological progress in one sector of the economy
      - Increase in a country's supply of a factor of production

A Standard Model of a Trading Economy

Figure 5-6: Biased Growth

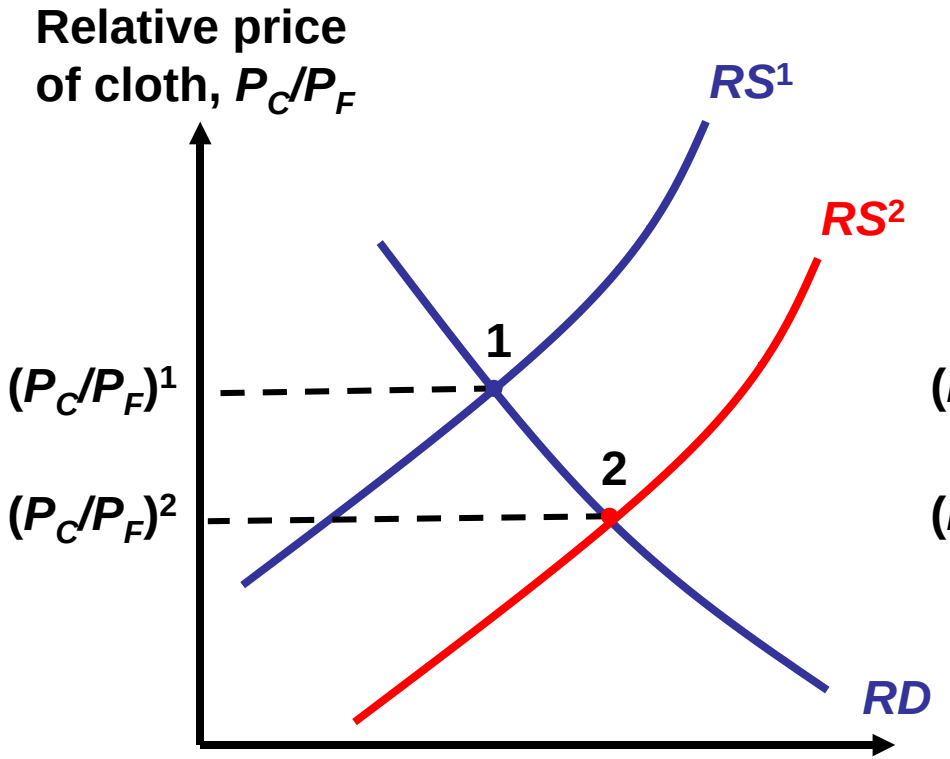


A Standard Model of a Trading Economy

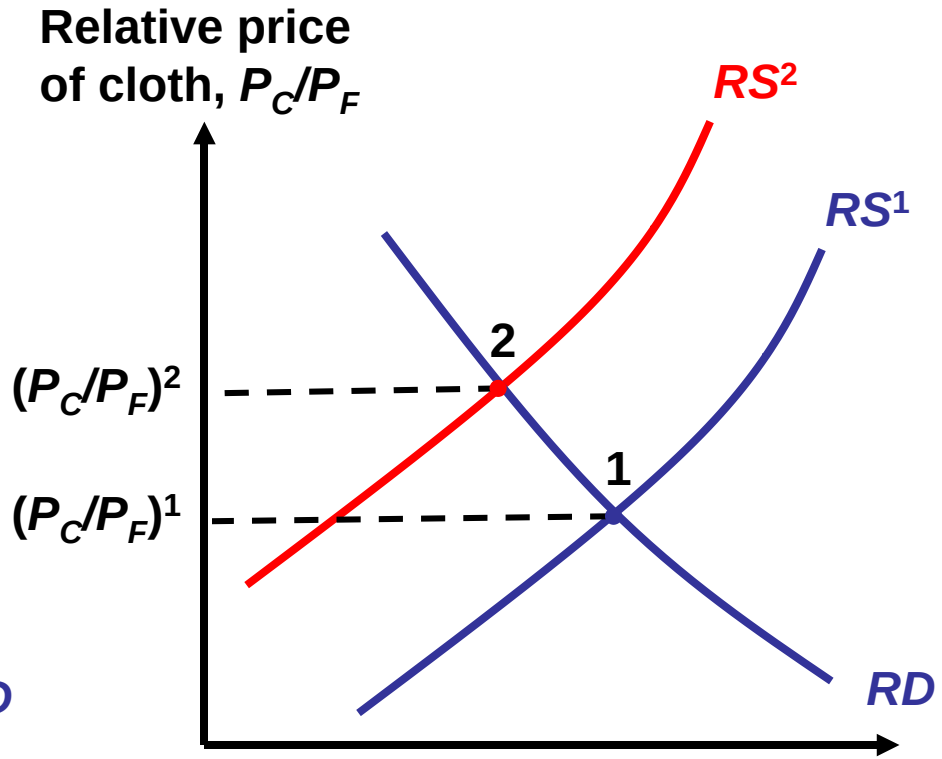
- Relative Supply and the Terms of Trade
  - **Export-biased growth**
    - Disproportionately expands a country's production possibilities in the direction of the good it exports
    - Worsens a growing country's terms of trade, to the benefit of the rest of the world
  - **Import-biased growth**
    - Disproportionately expands a country's production possibilities in the direction of the good it imports
    - Improves a growing country's terms of trade at the rest of the word's expense

A Standard Model of a Trading Economy

Figure 5-7: Growth and Relative Supply



(a) Cloth-biased growth



(b) Food-biased growth

A Standard Model of a Trading Economy

- International Effects of Growth
  - Export-biased growth in the rest of the world improves our terms of trade, while import-biased growth abroad worsens our terms of trade.
  - Export-biased growth in our country worsens our terms of trade, reducing the direct benefits of growth, while import-biased growth leads to an improvement of our terms of trade.

A Standard Model of a Trading Economy

- **Immiserizing growth**
  - A situation where export-biased growth by poor nations can worsen their terms of trade so much that they would be worse off than if they had not grown at all
  - It can occur under extreme conditions: Strongly export-biased growth must be combined with very steep *RS* and *RD* curves.
  - It is regarded by most economists as more a theoretical point than a real-world issue.

A Standard Model of a Trading Economy

Table 5-1: Average Annual Percent Changes in Terms of Trade

	1983–1992	1993–2002
Advanced countries	1.1	0.1
Oil-exporting developing countries	−7.5	2.0
Non-oil-exporting developing countries	−0.6	−0.2

Source: International Monetary Fund, *World Economic Outlook,* May 2001.

International Transfers of Income: Shifting the *RD* Curve

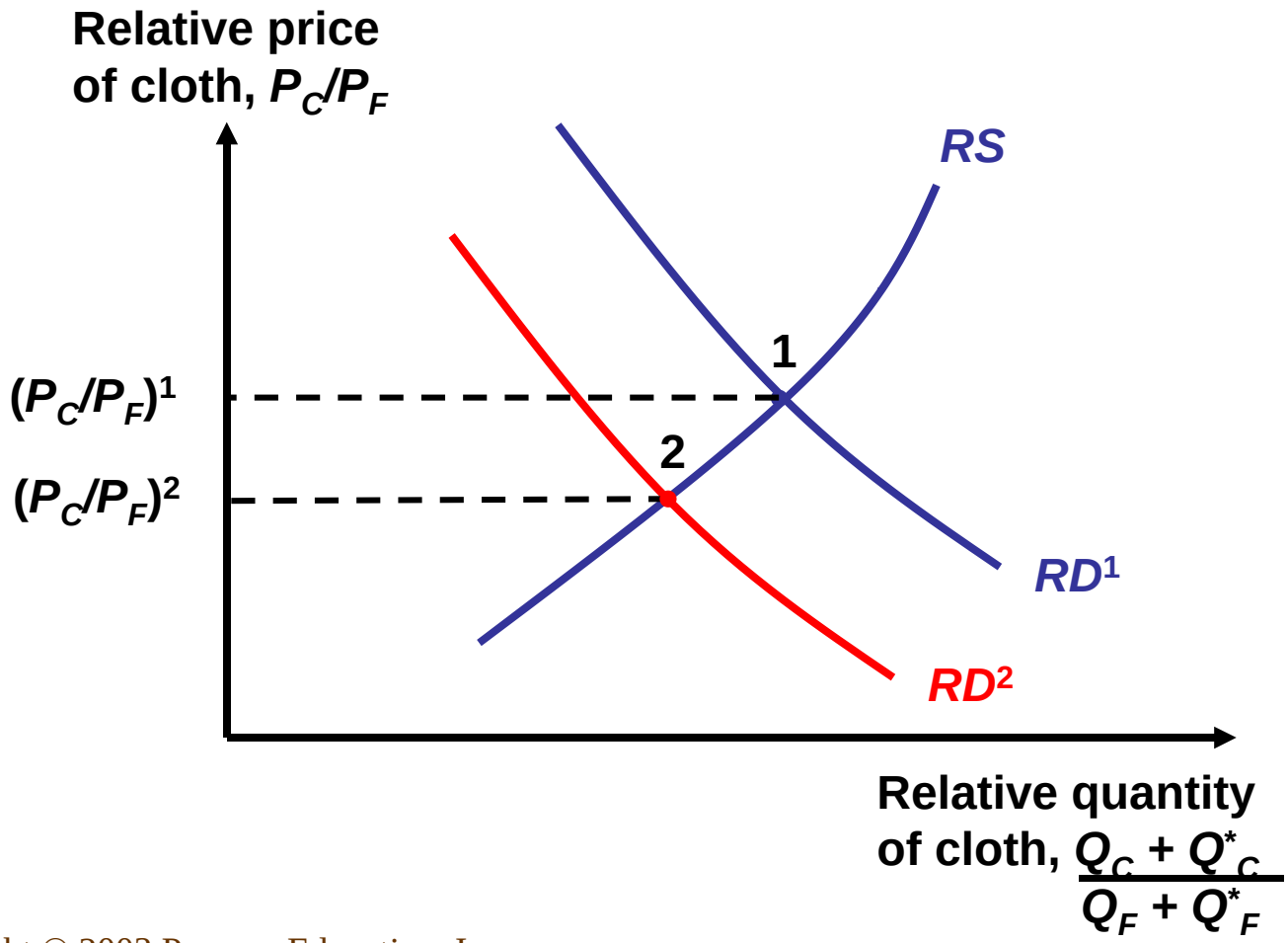
- International transfers of income, such as war reparations and foreign aid, may affect a country's terms of trade by shifting the world relative demand curve.
- Relative world demand for goods may shift because of:
  - Changes in tastes
  - Changes in technology
  - International **transfers of income**
- The Transfer Problem
  - How international transfers affect the terms of trade

International Transfers of Income: Shifting the *RD* Curve

- Effects of a Transfer on the Terms of Trade
  - When both countries allocate their change in spending in the same proportions (Ohlin's point):
    - The *RD* curve will not shift, and there will be no terms of trade effect.
  - When the two countries do not allocate their change in spending in the same proportions (Keynes's point):
    - The *RD* curve will shift and there will be a terms of trade effect.
      - The direction of the effect on terms of trade will depend on the difference in Home and Foreign spending patterns.

International Transfers of Income: Shifting the *RD* Curve

Figure 5-8: Effects of a Transfer on the Terms of Trade



International Transfers of Income: Shifting the *RD* Curve

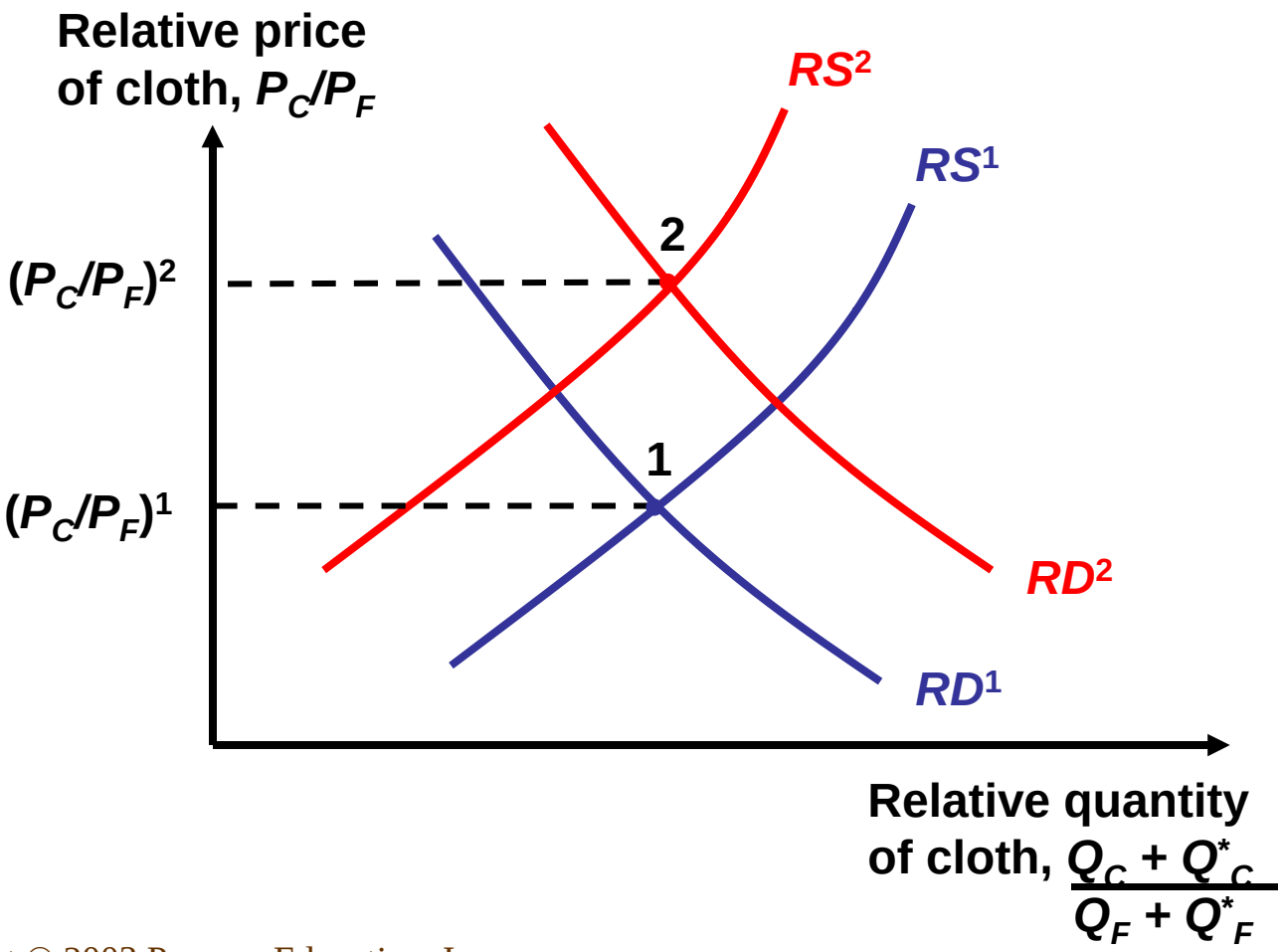
- Presumptions about the Terms of Trade Effects of Transfers
  - A transfer will worsen the donor's terms of trade if the donor has a higher marginal propensity to spend on its export good than the recipient.
  - In practice, most countries spend a much higher share of their income on domestically produced goods than foreigners do.
    - This is not necessarily due to differences in taste but rather to barriers to trade, natural and artificial.

Tariffs and Export Subsidies: Simultaneous Shifts in *RS* and *RD*

- **Import tariffs** and **export subsidies** affect both relative supply and relative demand.
- Relative Demand and Supply Effects of a Tariff
  - Tariffs drive a wedge between the prices at which goods are traded internationally (**external prices**) and the prices at which they are traded within a country (**internal prices**).
  - The terms of trade correspond to external, not internal, prices.

Tariffs and Export Subsidies: Simultaneous Shifts in *RS* and *RD*

Figure 5-9: Effects of a Tariff on the Terms of Trade

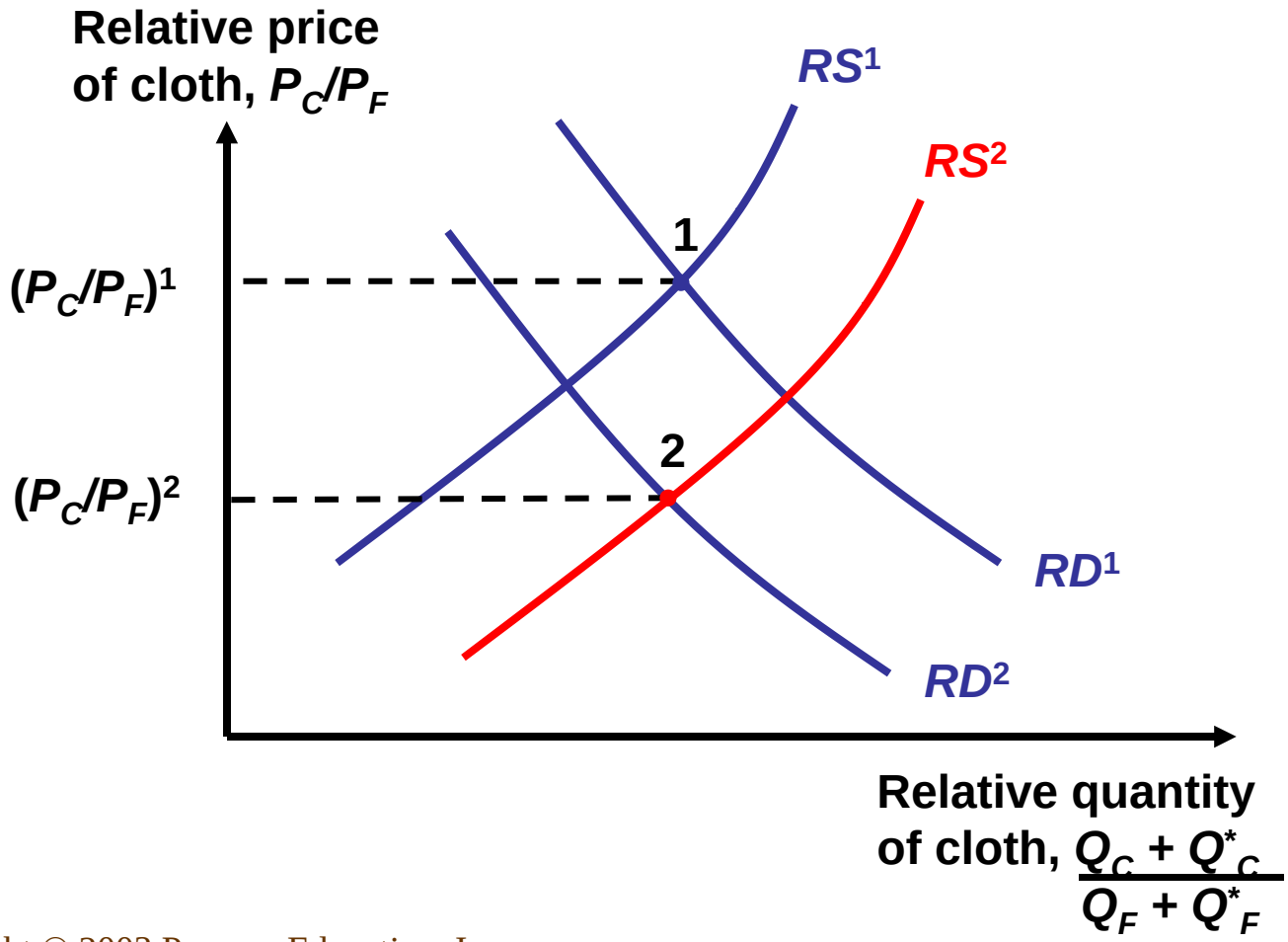


Tariffs and Export Subsidies: Simultaneous Shifts in *RS* and *RD*

- Effects of an Export Subsidy
  - Tariffs and export subsidies are often treated as similar policies but they have opposite effects on the terms of trade.
    - Example: Suppose that Home offers 20% subsidy on the value of cloth exported:
      - This will raise Home's internal price of cloth relative to food by 20%.
      - This will lead Home producers to produce more cloth and less food.
    - A Home export subsidy worsens Home's terms of trade and improves Foreign's.

Tariffs and Export Subsidies: Simultaneous Shifts in *RS* and *RD*

Figure 5-10: Effects of a Subsidy on the Terms of Trade



Tariffs and Export Subsidies: Simultaneous Shifts in *RS* and *RD*

- Implications of Terms of Trade Effects: Who Gains and Who Loses?
  - **The International Distribution of Income**
    - If Home (a large country) imposes a tariff, its welfare increases as long as the tariff is not too large, while Foreign's welfare decreases.
    - If Home offers an export subsidy, its welfare deteriorates, while Foreign's welfare increases.
  - **The Distribution of Income Within Countries**
    - A tariff (subsidy) has the direct effect of raising the internal relative price of the imported (exported) good.
    - Tariffs and export subsidies might have perverse effects on internal prices (**Metzler paradox**).

Summary

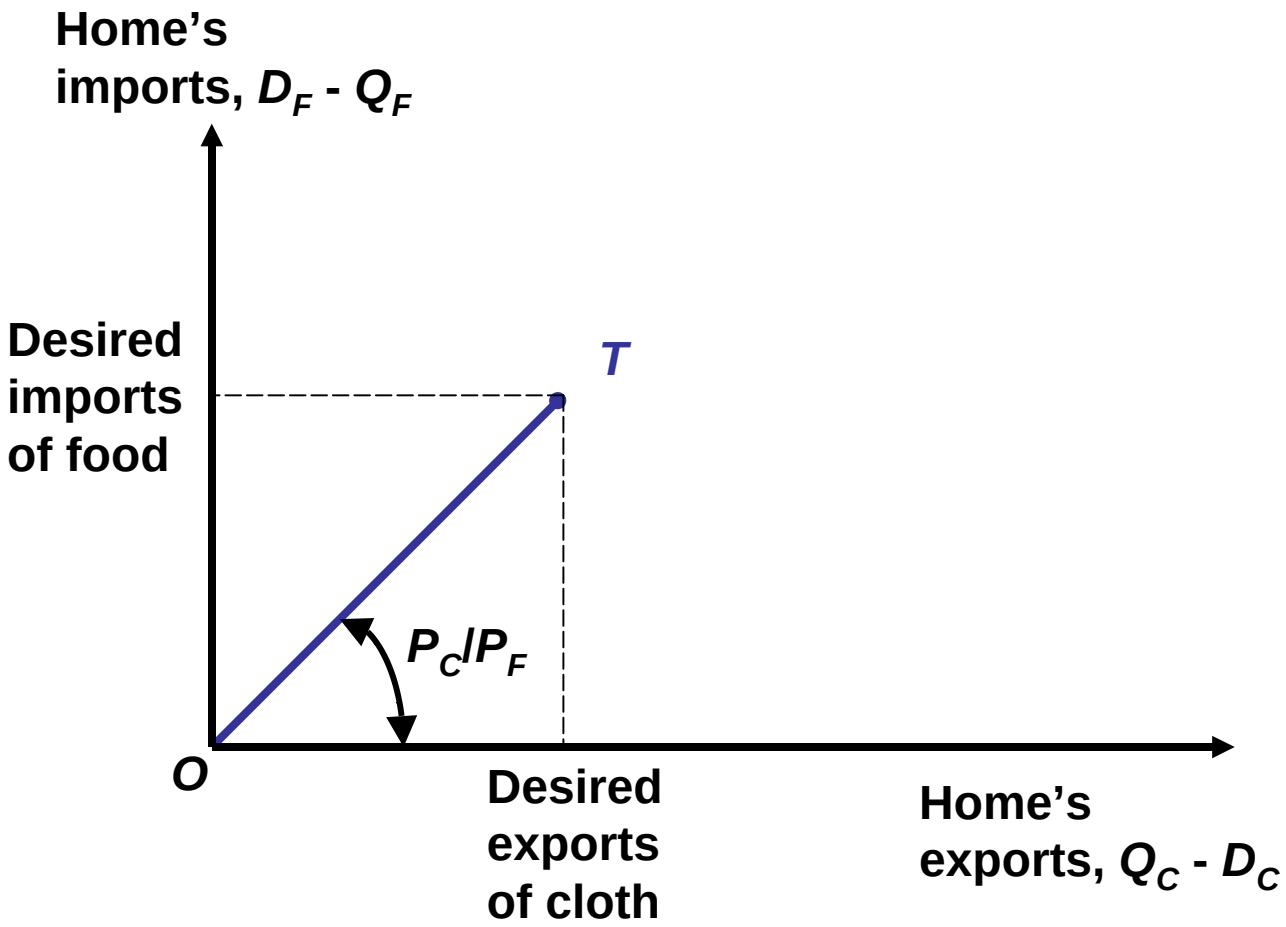
- The standard trade model provides a framework that can be used to address a wide range of international issues and admits previous trade models as special cases.
- A country's terms of trade are determined by the intersection of the world relative supply and demand curves.
- Economic growth is usually biased. Growth that is export-biased (import-biased) worsens (improves) the terms of trade.

Summary

- International transfers of income may affect a country's terms of trade, depending if they shift the world relative demand curve.
- Import tariffs and export subsidies affect both relative supply and demand.
- The terms of trade effects of an export subsidy hurt the exporting country and benefit the rest of the world, while those of a tariff do the reverse.
  - Both trade instruments have strong income distribution effects within countries.

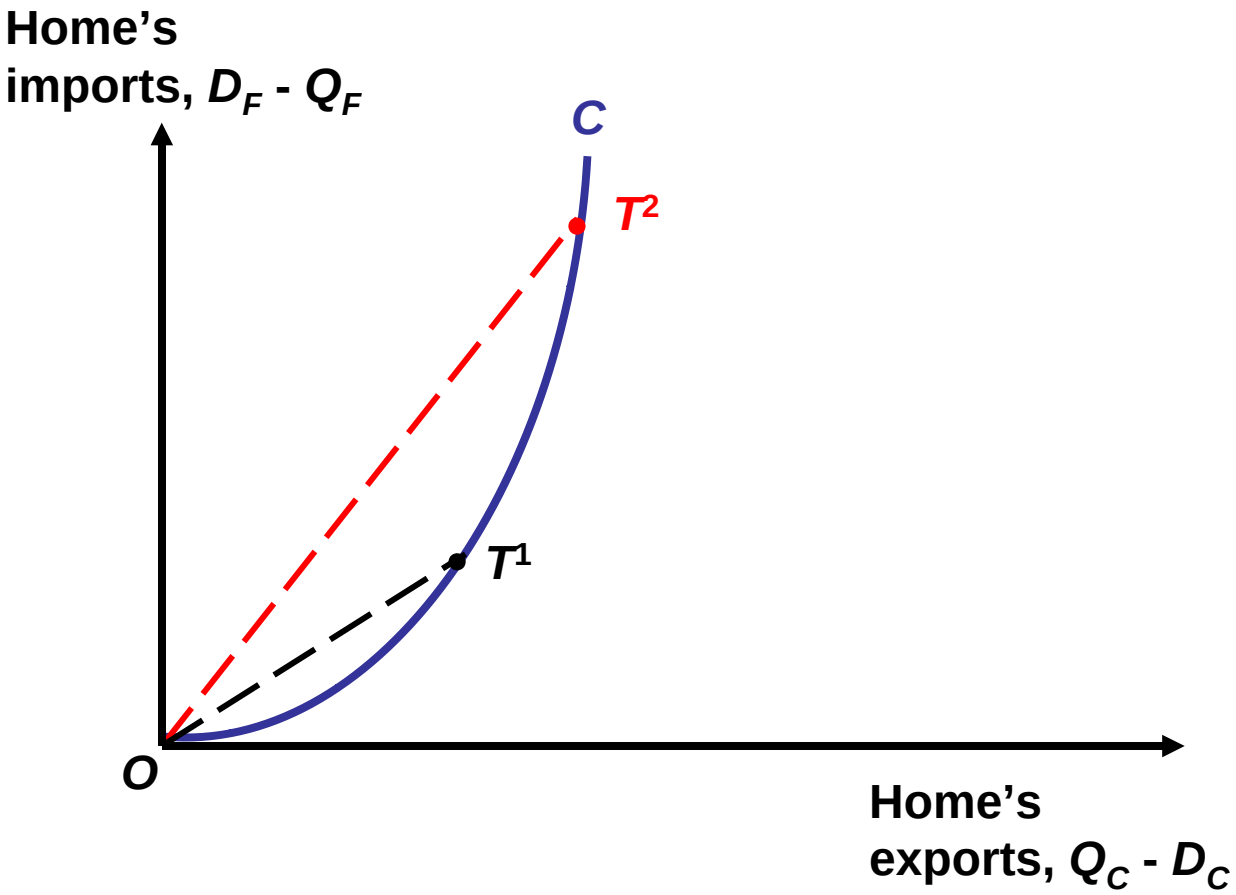
Appendix: Representing International Equilibrium with Offer Curves

Figure 5A-1: Home's Desired Trade at a Given Relative Price



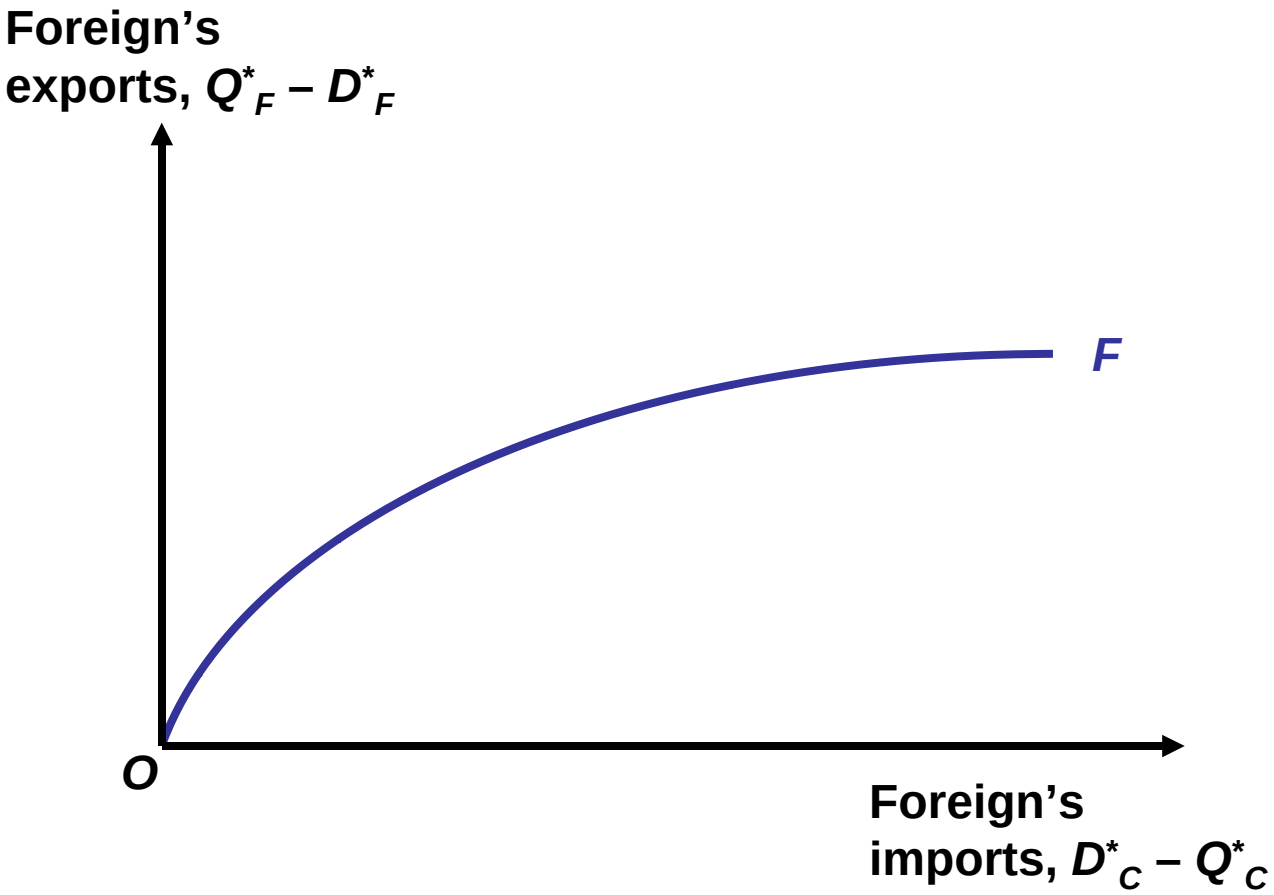
Appendix: Representing International Equilibrium with Offer Curves

Figure 5A-2: Home's Offer Curve



Appendix: Representing International Equilibrium with Offer Curves

Figure 5A-3: Foreign's Offer Curve



Appendix: Representing International Equilibrium with Offer Curves

Figure 5A-4: Offer Curve Equilibrium