International Trade Theory and Policy

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# The Standard Trade Model

## Overview

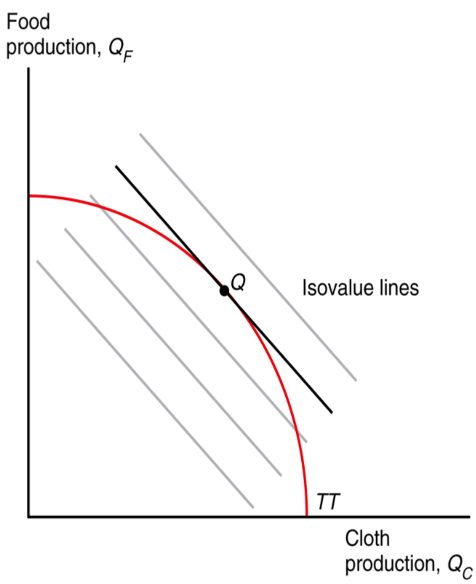
- Relative supply and relative demand
- The terms of trade and welfare
- Effects of economic growth, import tariffs, and export subsidies
- International borrowing and lending

## Introduction

- Standard trade model is a general model that includes Ricardian, specific factors, and Heckscher-Ohlin models as special cases.
  - Two goods, food (F) and cloth (C).
  - Each country's PPF is a smooth curve.
- Differences in *labor services, labor skills, physical capital, land, and technology* between countries cause differences in production possibility frontiers.
- A country's PPF determines its relative supply function.
- National relative supply functions determine a world relative supply function, which along with world relative demand determines the equilibrium under international trade.

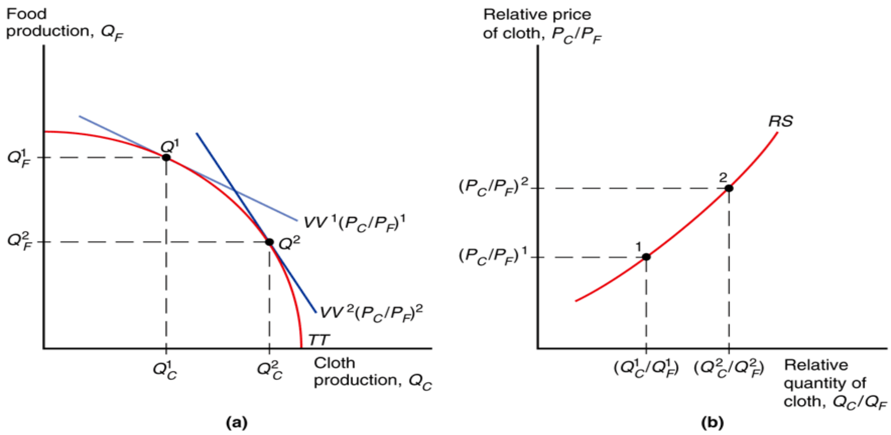
## Production Possibilities and Relative Supply

- What a country produces depends on the relative price of cloth to food $P_C/P_F$.
- An economy chooses its production of cloth $Q_C$ and food $Q_F$ to maximize the value of its output $V = P_C Q_C + P_F Q_F$, given the prices of cloth and food.
  - The slope of an isovalue line equals $-(P_C/P_F)$
  - Produce at point where PPF is tangent to isovalue line.



## Production Possibilities and Relative Supply

- An increase in $P_C/P_F$ makes the isovalue line steeper.
- Production shifts from point $Q^1$ to point $Q^2$ and the supply of cloth relative to food $Q_C/Q_F$ rises.
- Relative supply of cloth to food increases with the relative price of cloth to food.



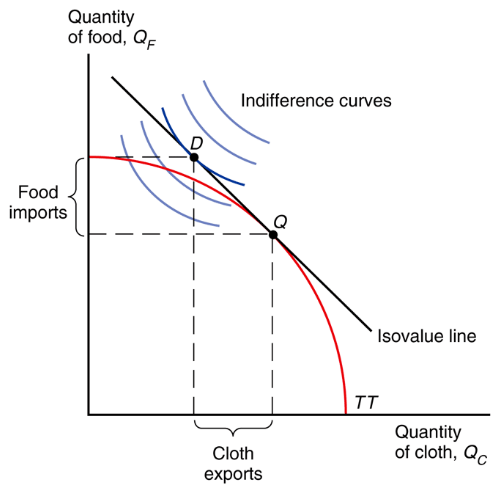

## Relative Prices and Demand

- If the value of the economy's consumption equals the value of its production, then:

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

- An **indifference curve** indicates the combinations of cloth and food that leave the representative consumer equally well off (indifferent).
- Consumption choice is based on preferences and relative price of goods:
  - Consume at point $D$ where the isovalue line is tangent to the indifference curve.
- Economy exports cloth – the quantity of cloth produced exceeds the quantity of cloth consumed – and imports food.

## Production, Consumption, and Trade

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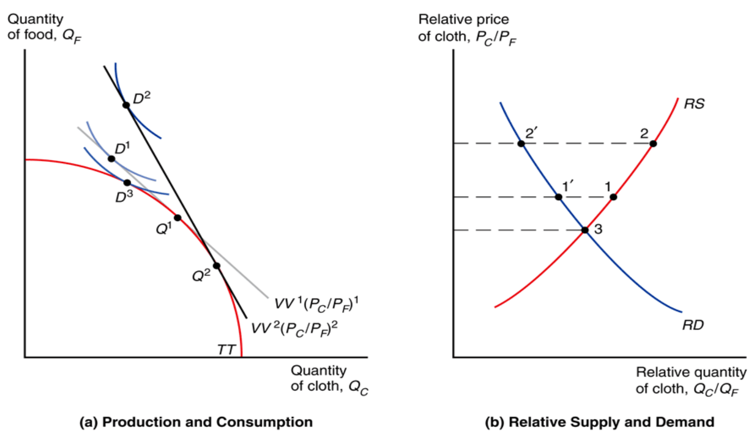
## Effects of a Rise in the Relative Price of Cloth and Gains from Trade




As rise in $P_C/P_F$ represents and an improvement in the terms-of-trade, from which the country gains.

## Determining World Relative Prices

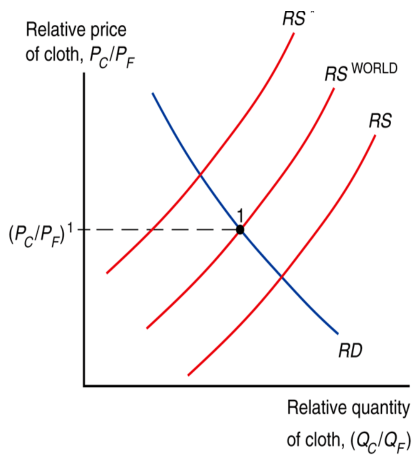
The world price of cloth is derived from the world relative supply and relative demand.

- *World* supply of cloth relative to food at each relative price.
- *World* demand for cloth relative to food at each relative price.
- World quantities are the sum of quantities from the two countries in the world:

  $(Q_C + Q_C{}^*)/(Q_F + Q_F{}^*)$

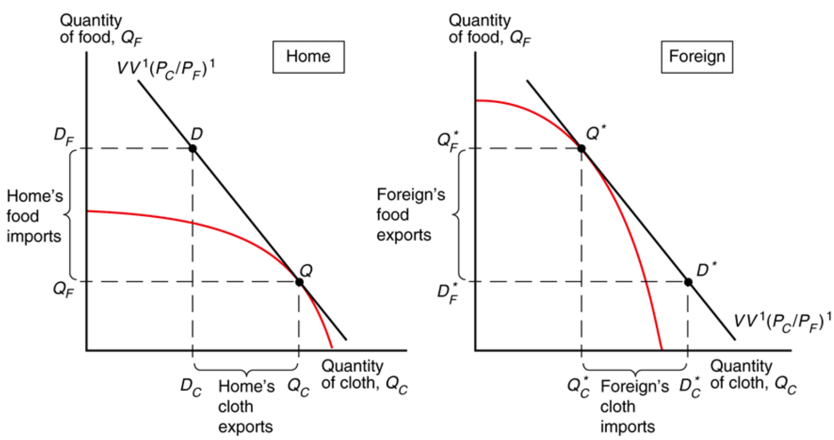
  and

  $(D_C + D_C{}^*)/(D_F + D_F{}^*)$.




**(a) Relative Supply and Demand**

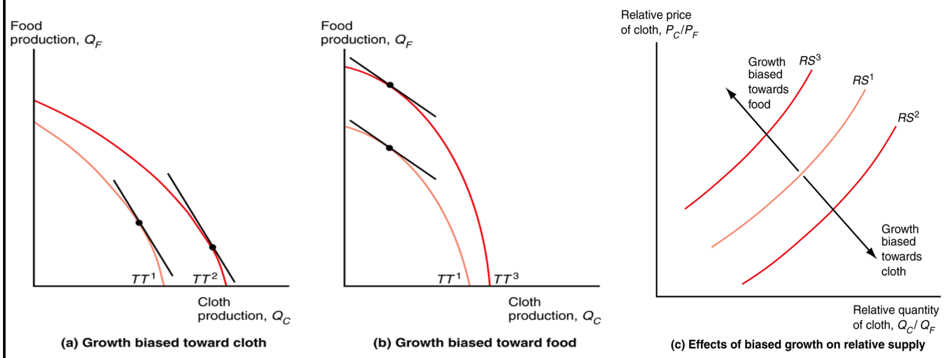
## Equilibrium Relative Price and Associated Trade Flows




**(b) Production, Consumption, and Trade**

## The Effects of Economic Growth

Growth is usually **biased**: it occurs in one sector more than others, causing relative supply to change. As a result, change in relative supply lead to changes in the terms-of-trade.




## The Effects of Economic Growth

- **Export-biased growth** is growth that expands a country's production possibilities disproportionately in that country's export sector.
- **Import-biased growth** is growth that expands a country's production possibilities disproportionately in that country's import sector.
- Export-biased growth reduces a country's terms of trade, reducing its welfare and increasing the welfare of foreign countries.
- Import-biased growth increases a country's terms of trade, increasing its welfare and decreasing the welfare of foreign countries.

## Has Growth in Asia Reduced the Welfare of High-Income Countries?

- The standard trade model predicts that *import*-biased growth in China reduces the U.S. terms of trade and the standard of living in the U.S.
  - Import-biased growth for China would occur in sectors that compete with U.S. exports.
- But this prediction is not supported by data: there should be negative changes in the terms of trade for the U.S. and other high-income countries.
  - In fact, changes in the terms of trade for high-income countries have been positive and negative for developing Asian countries.

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## Average Annual Percent Changes in Terms of Trade for the United States and China

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**TABLE 6-1** Average Annual Percent Changes in Terms of Trade for the United States and China

| | Change by Decade | | | Overall Change |
|---|---|---|---|---|
| | 1980–89 | 1990–99 | 2000–08 | 1980–2008 |
| U.S. | 1.6% | 0.4% | −1.0% | 0.1% |
| China | −1.4% | 0.2% | −3.3% | −1.3% |

## Import Tariffs and Export Subsidies: Simultaneous Shifts in RS and RD

- **Import tariffs** are taxes levied on imports.
- **Export subsidies** are payments given to domestic producers that export.
- Both policies influence the terms of trade and therefore national welfare.
- Import tariffs and export subsidies drive a wedge between prices in world markets and prices in domestic markets.

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## Relative Price and Supply Effects of a Tariff

- If the home country imposes a tariff on food imports, the price of food relative to the price of cloth rises for domestic consumers.
  - Likewise, the price of cloth relative to the price of food falls for domestic consumers.
  - Domestic producers will receive a lower relative price of cloth, and therefore will be more willing to switch to food production: relative supply of cloth will decrease.
  - Domestic consumers will pay a lower relative price for cloth, and therefore will be more willing to switch to cloth consumption: relative demand for cloth will increase.

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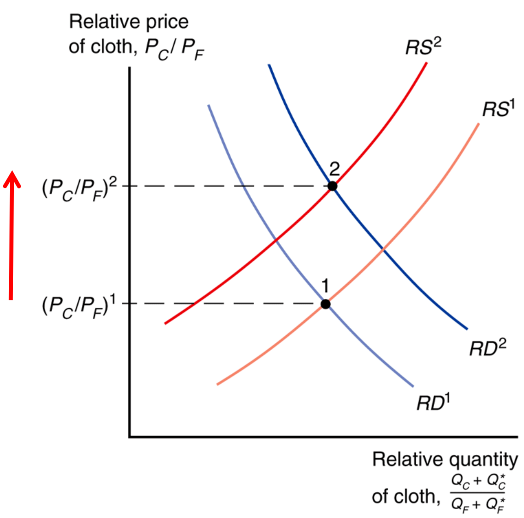
# Terms of Trade Effect of a Tariff on Food Imports

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# Relative Price and Supply Effects of a Tariff (cont.)

- When the home country imposes an import tariff, the terms of trade increase and the welfare of the country may increase.
- The magnitude of this effect depends on the size of the home country relative to the world economy.
  - If the country is a small part of the world economy, its tariff (or subsidy) policies will not have much effect on world relative supply and demand, and thus on the terms of trade.
  - But for large countries, a tariff may maximize national welfare at the expense of foreign countries.

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## Effects of an Export Subsidy

- If the home country imposes a subsidy on cloth exports, the price of cloth relative to the price of food rises for domestic consumers.
  - Domestic producers will receive a higher relative price of cloth when they export, and therefore will be more willing to switch to cloth production: relative supply of cloth will increase.
  - Domestic consumers must pay a higher relative price of cloth to producers, and therefore will be more willing to switch to food consumption: relative demand for cloth will decrease.

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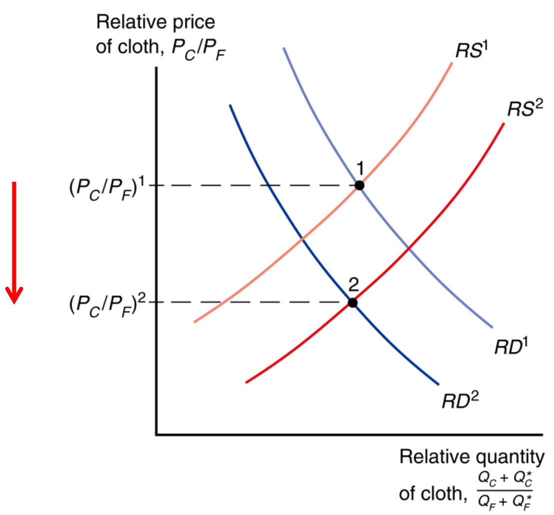
## Terms of Trade Effects of a Subsidy to Cloth Exports

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