The Standard Trade Model

Chapter 5

Intermediate International Trade

International Economics, 5th ed., by Krugman and Obstfeld
Standard model of a trading economy

- the **standard trade model** is a general model which predictions do not depend strongly on the supply side details of the economy
- Ricardian model, Specific factor model and Heckscher-Ohlin model are special cases of the Standard trade model
- **two goods**: food $F$ and cloth $C$
- **technology**: production possibility frontier is bowed-out
• relative price: \( \frac{P_C}{P_F} \)

• efficient level of production: the one that maximizes the value of output at given market prices: \( P_C Q_C + P_F Q_F \)

• isovalue line: line along which the value of output \( V \) is constant:

\[
\begin{align*}
V &= P_C Q_C + P_F Q_F \\
Q_F &= \frac{V}{P_F} - \left( \frac{P_C}{P_F} \right) Q_C
\end{align*}
\]
• let $D_C$ and $D_F$ be consumption; the value of an economy’s consumption equals the value of its production:

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

• efficient level of consumption: the one on the isovalue line that maximizes welfare (utility)

• when the efficient level of consumption does not coincide with the efficient level of production, then the economy exports one of the goods, and imports the other
• **terms of trade**: is the price of the good a country initially exports divided by the price of the good it initially imports

• assume that the trading economy initially exports cloth:

  Effects of an increase in the terms of trade $P_C / P_F$:
  
  (1) **income effect**: since the economy exports cloth, then it can afford to import more food, and so the country is better off, or there is an increase in welfare

  (2) **substitution effect**: for given level of welfare, the economy consumes more food and less cloth
• conclusion: *a rise in terms of trade increases a country’s welfare, while a decline in the terms of trade reduces its welfare*

• **two countries**: home (which exports cloth) and foreign (which exports food)

• **world relative price** $P_C/P_F$: determined at the intersection of world relative supply and demand of cloth
Using the standard model

- **question**: is economic growth in other countries good or bad for our nation?
- common sense answer:
  - “pros”: larger markets for our products
  - “cons”: increased competition for our exporters
- with economic growth the production possibility frontier shifts outwards
- there is usually **biased growth** because the production possibility frontier shifts more in one direction than the other
• two reasons for biased growth in models:
  \textit{Ricardian}: technological progress in one sector
  \textit{Specific factor \\& Heckscher-Ohlin}: increase in
  supply of a factor of production

• for a given relative price $P_C / P_F$, biased
growth toward cloth raises the output of
cloth \textit{relative to} that of food

• strong biased growth toward cloth in either
country, causes world relative supply of
cloth curve to shift to the right, and $P_C / P_F$ to fall
• **export-biased growth**: expands a country’s production possibility in the direction of the good that it exports

• **import-biased growth**: expands a country’s production possibility in the direction of the good that it imports

• conclusion:

  *Export-biased growth* tends to worsen a growing country’s terms of trade, to the benefit of the rest of the world.  
  *Import-biased growth* tends to improve a growing country’s terms of trade, at the rest of the world expense.
Transfers: a second application of the standard model

• standard trade model is useful to analyze the effect of international transfers of income on the terms of trade
• transfers of income do not affect the relative supply curve (they are not transfers of physical factors of production) but they may shift the relative demand curve
• terms of trade are affected when the relative demand curve shifts
• there is shift in the relative demand curve when countries do not allocate their change in spending across goods in the same proportions

• the relative demand curve of cloth shifts left if home transfers income to foreign, and foreign has a lower marginal propensity to spend on cloth than home

• if home exports cloth, then home would not only has less income, but terms of trade for home will be worse

A transfer worsens the donor’s terms of trade if the donor has a higher marginal propensity to spend on its export good than the recipient. If the donor has a lower marginal propensity to spend on its export good, its terms of trade will actually improve.
• the empirical fact that countries tend to spend more on its own goods is called **home biased**
• part of this home biased can be explained by the existence of nontraded goods
• nontraded goods compete for inputs with export goods

**International transfers with nontraded goods**
- home transfers income to foreign
- demand for nontraded goods decreases at home
- reallocation of inputs to the production of export goods
- foreign receives the transfer
- demand for nontraded increases in foreign
- supply of foreign exports decreases
- terms of trade worsen for home
Tariffs and subsidies: one more use for the standard model

- **import tariffs** and **export subsidies** affect terms of trade through their effect in relative supply and demand
- import tariffs make imported goods more expensive inside the country
- export subsidies raise the price of exported goods inside the country
- tariffs and subsidies affect **internal prices**, which are the prices used by producers and consumers at home
• although terms of trade correspond to external prices, tariffs and subsidies affect terms of trade because they affect the world relative supply and demand

Home imposes a tariff on food imports:
- internal relative price of food increases
- home producers of cloth decrease the supply
- home producers of food increase the supply
- home consumers spend more in cloth than in food
- world RS of cloth falls and RD of cloth rises
- world relative price of cloth rises

• the magnitude of the effect of tariffs on terms of trade depends on the size of the country imposing the tariff, relative to the rest of the world
• while terms of trade improve for a country imposing a tariff, there are costs for the country in terms of distortions

• the smaller the country, the larger the costs of distortion and the smaller the benefits from increased terms of trade
• imposing a subsidy makes home clearly worse off because of the distortion and terms of trade deterioration

In general, subsidies in foreign countries to goods that home imports, help home, while tariffs in foreign countries to goods that home export, hurt home

• since tariffs and subsidies change the internal relative price, then they have effects on income distribution

In general, a tariff will make better off the factor used intensively in the import-competiting sector at home, and will make worse off the factor used intensively in the exporting sector