1. Mutual gains from exchange

2. Gains from specialization

3. The gains-from-trade theorem

4. The distribution of gains between countries

5. The distribution of gains between individuals within countries

The ability to trade (voluntarily, non-coerced) leads to *mutual gains* from trade.

Suggestions that one country can only benefit at the expense of the other are *false*.

(1) Point of departure: the ability to trade at any prices other than the country's autarky prices must make the country better off.

(2) The optimal direction of trade depends only on the difference between the country's autarky prices and world prices:

> Sell high, buy low: sell to the world what is more valuable to them than at home; buy from the world what is more costly and difficult to produce at home.

(3) Gains from trade are mutual for two countries: it is not the case that one gains at the expense of the other.
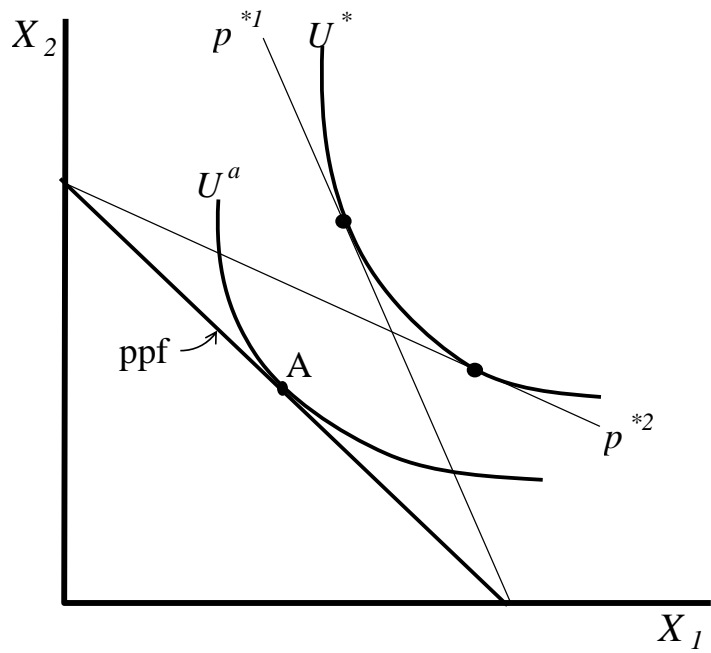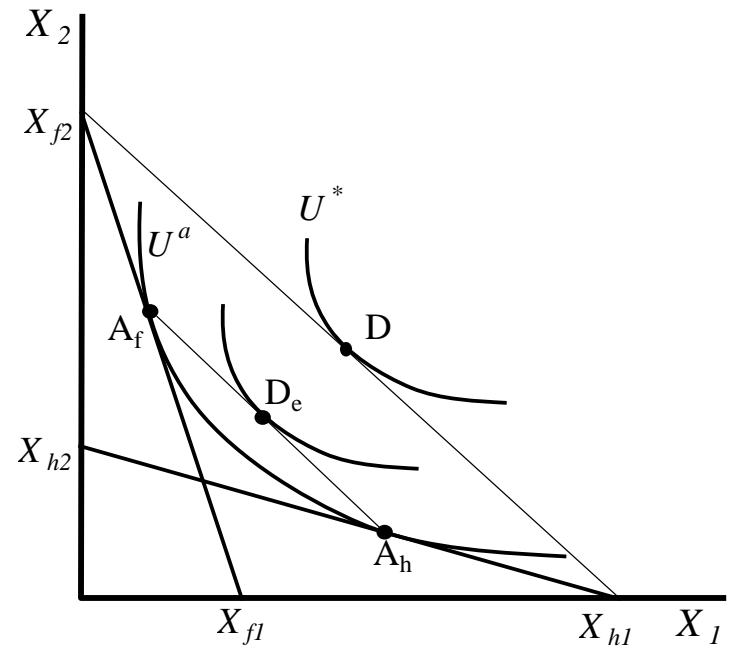
Figure 5.1

Figure 5.2

(4) Total gains can be decomposed into gains from exchange and gains from specialization. (Figure 5.2)

Gains from exchange

When two traders have similar preferences but different endowments, trade allows them to have a more diverse consumption basket or a more balanced consumption basket.

Gains from specialization

However, typically countries have the ability to produce different bundles of goods (the production possibility curve).

Figure 5.2 shows that there are further gains to be captured by specializing in what a country is good at.

The gains-from-trade theorem -   Free Trade versus Autarky

An undistorted, competitive economy must be better off in free trade than in autarky.

p^* -   vector of free trade prices, p_i^*

X^* -   vector of free trade outputs, X_i^*

C^* -   vector of free trade consumption, D_i^*

X^a -   vector of autarky outputs, X_i^a

C^a -   vector of autarky consumption, D_i^*

(1) Production efficiency in a competitive, undistorted economy

$$\sum_i p_i^* X_i^* \geq \sum_i p_i^* X_i^a$$

The free-trade production bundle yields a higher income at free-trade prices than the autarky bundle. We established this in earlier notes

(2) Autarky market clearing, trade balance

$$X_i^a = D_i^a \qquad \sum_i p_i^* X_i^* = \sum_i p_i^* D_i^*$$

(3) Substitute (2) into (1)

$$\sum_i p_i^* D_i^* \;\geq\; \sum_i p_i^* D_i^a \qquad\qquad 6$$

Free trade is "Revealed Preferred" autarky

In free trade (at free-trade prices), the economy could have purchased the autarky consumption bundle but chose not to (the autarky bundle is cheaper that the free-trade bundle actually purchased).

This means that the economy prefers the free-trade bundle to the autarky bundle.

Figure 5.1 adds in indifference curves for illustration, but we stress that the validity of the argument is independent of the position of the indifference curves.

The gains from trade theorem is very powerful, but limited.

It says that free trade is better than autarky, but it doesn't say anything about the size of the gains, and which country gets more of the total gains.

Figure 5.3: E is the endowment point: h has all the X_1 and f has all of the X_2.

There are a whole set of trades that make both better off (or no worse off): all points in the "lens" formed by the indifference curves through the endowment point E.

The set of "Pareto efficient" trade are the tangency points (contract curve) between A and B in Figure 5.3. At A Ole gets all of the gains, at B Lena gets all of the gains.
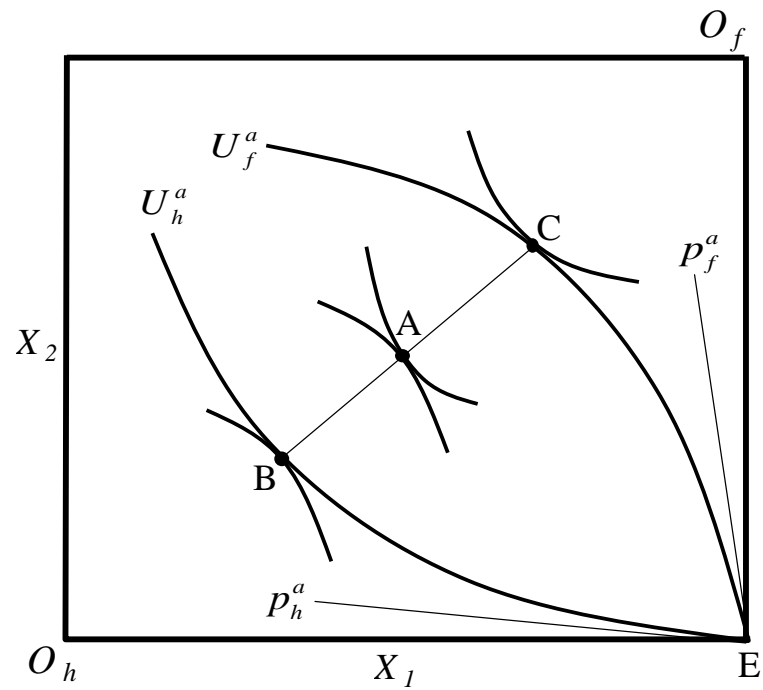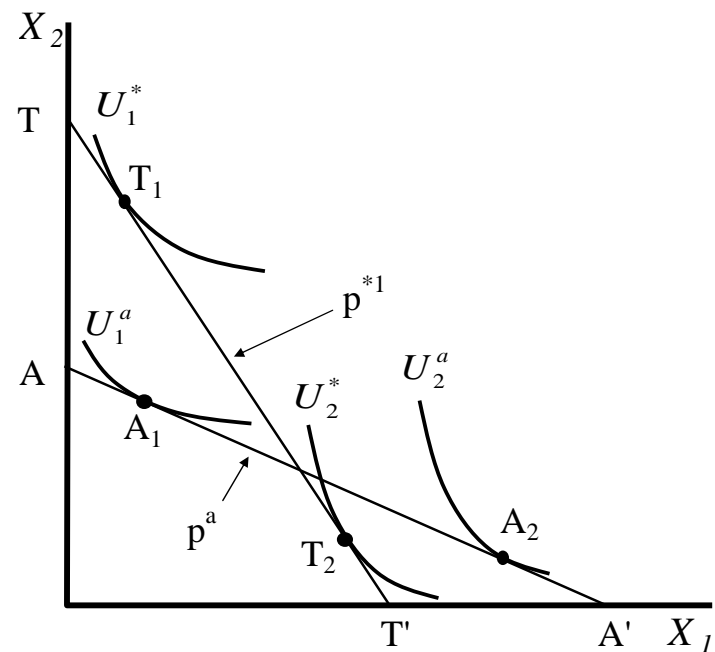
Figure 5.3

Figure 5.4

In a situation with only two traders, we usually think of this as a bargaining situation, where better or more patient bargainers get more of the gains.

In market situations where there are large numbers of traders in the two economies, the outcome is determined through supply and demands that determine *equilibrium prices*, and equilibrium *prices* determine the *distribution* of the total gains.

Later, in chapter 7, we will show that country size has an important role to play in the distribution of gains from trade.

The situation gets more complicated when there are many consumers within a country who have difference endowments, abilities, or preferences.

Key point: the opening of trade inevitably involves changes in the *prices* of goods and factors of production.

Changes in the prices of factors redistribute income among households. Change in the prices of goods change utility differently for households with different preferences.

Figure 5.4. Two households with different preferences. The change in relative prices from p^a to $p*$ makes type-1 better off, type-2 worse off.

Secondly, households can derive their income in different ways, so price change make some better off and may make some worse off.

Suppose country h has lots of X_1 producers but few X_2 producers. Each producer is useless at the other task.

Equilibrium for country h with lots of X_1 and little X_2 is at point X_h, and the tangent to the indifference curve is the equilibrium relative price ratio. (Figure 5.5)

Equilibrium for country f is at point X_f in Figure 5.5, where lots of X_2 and little X_1 mean a high high price for X_1 relative to X_2.

=> in *each* country, producers of the *scarce* good enjoy a price advantage.

Figure 5.5

Figure 5.6

X_2

U^a

p^*

X_f

p_h^a

D

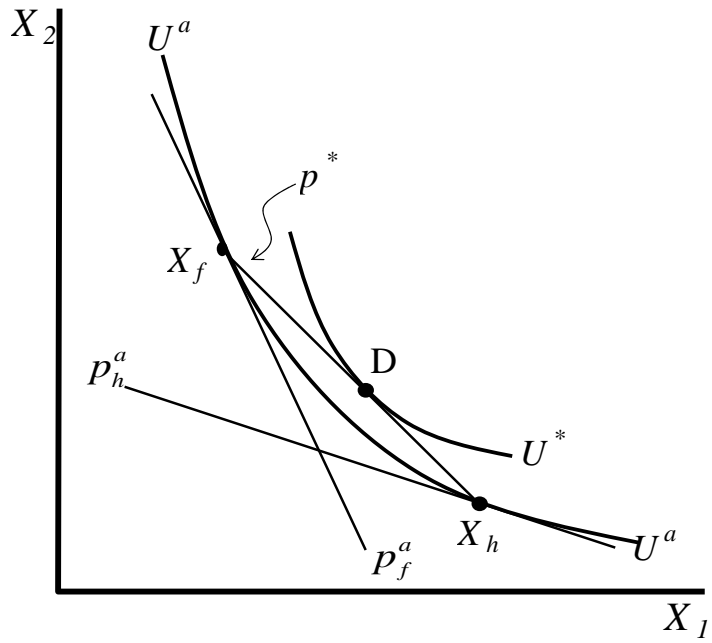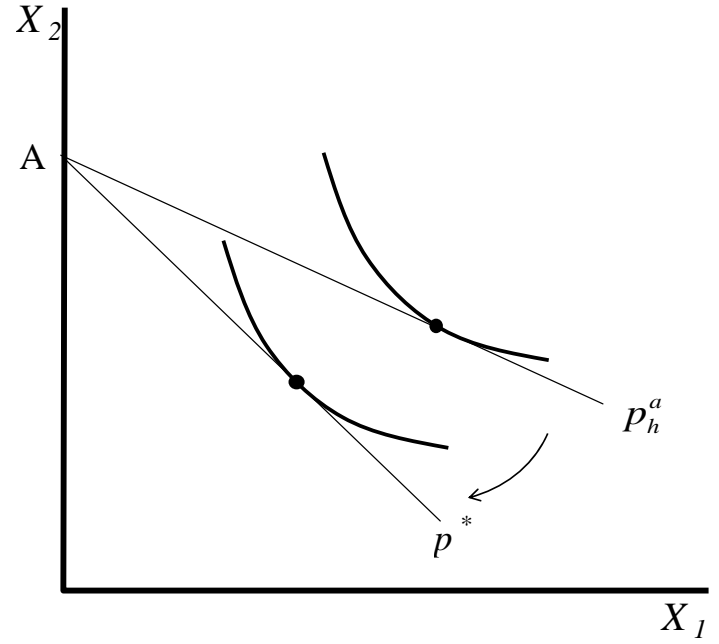U^*

p_f^a

X_h

U^a

X_1

X_2

A

p_h^a

p^*

X_1

Now let the countries trade. Perhaps they will trade to the mid-point between f and h, denoted point D in Figure 5.5.

Note especially that the relative price ratio is now between the two autarky price ratios.

Who don't you want to be in this example: answer,

A producer of the scarce good: a X_2 producer in country h or a X_1 producer in country f.

The "income" of the X_2 producers in country h is fixed at A in Figure 5.6.
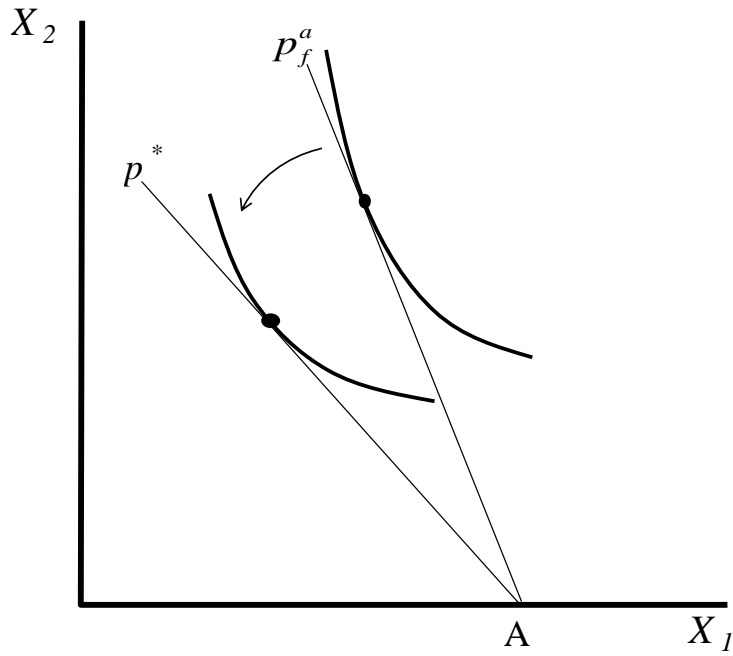
But after trade, the producer gets a lower price relative to the cost of buying X_1, and so this individual is worse off with trade.

Similarly, the minority X_1 producer in country f are worse off with trade because the price that he/she can sell X_1 for is now lower after trade (Figure 5.7).

Figures 5.5-5.7 reveal the *fundamental tension* over trade policy and give the key intuition as to why groups within a country fight so ferociously over free trade versus protection:

While free trade increases aggregate income for a country, nothing guarantees that all *individuals* within the country benefit much less benefit equally.

Figure 5.7

We want to close with one caveat. We will return to this point many times but want to give a quick introduction here.

Proofs of gains from trade relies on a number of assumptions such as perfect competition and the absence of other distortions such as taxes and subsidies.

Gains from trade do not always occur in the presence of distortions.

Intuition: in undistorted economies, producers and consumers are making decisions on the basis of "true" underlying values and correctly evaluate the opportunity costs of alternatives.