THE CAUSES OF TRADE

■ Under what circumstances would there be no trade between countries?

➢ Identical production technologies

➢ Identical factor endowments

➢ Constant returns to scale

➢ Identical and homogeneous tastes

➢ Absence of distortions such as imperfect competition

■ Relaxing each of these in turn gives a specific cause of trade
Differences in Technology (Ricardo)

Labor is only factor, constant returns to scale, two goods $X$ and $Y$

\[ X = f_x(L_x) \]  \hspace{1cm} (1)

\[ Y = f_y(L_y) \]  \hspace{1cm} (2)

\[ L = L_x + L_y \]  \hspace{1cm} (3)

(1) and (2) can be re-written:

\[ X = \alpha L_x \]  \hspace{1cm} (4)

\[ Y = \beta L_y \]  \hspace{1cm} (5)

$\alpha, \beta > 0$ = marginal products ($dX/dL_x = \alpha, dY/dL_y = \beta$)

Table 1: Marginal Products

<table>
<thead>
<tr>
<th></th>
<th>Home</th>
<th>Foreign</th>
</tr>
</thead>
<tbody>
<tr>
<td>$X$</td>
<td>$\alpha_h = 20$</td>
<td>$\alpha_f = 30$</td>
</tr>
<tr>
<td>$Y$</td>
<td>$\beta_h = 20$</td>
<td>$\beta_f = 10$</td>
</tr>
</tbody>
</table>

$\alpha_h < \alpha_f$, f has an absolute advantage in $X$

$\beta_h > \beta_f$, h has an absolute advantage in $Y$
Table 2: Marginal Products

<table>
<thead>
<tr>
<th></th>
<th>Home</th>
<th>Foreign</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>$\alpha_h = 5$</td>
<td>$\alpha_f = 30$</td>
</tr>
<tr>
<td>Y</td>
<td>$\beta_h = 5$</td>
<td>$\beta_f = 10$</td>
</tr>
</tbody>
</table>

$\beta_h / \alpha_h > \beta_f / \alpha_f$  \hspace{1cm} (6)

i.e. $h$ has a *comparative advantage* in producing $Y$, even though $f$ has an *absolute advantage* in producing $X$ and $Y$ ($\alpha_h < \alpha_f$, $\beta_h < \beta_f$)

Move 4 workers from $X$ to $Y$ in $h$

Move 1 worker from $Y$ to $X$ in $f$

Table 3: Output Changes

<table>
<thead>
<tr>
<th></th>
<th>Home</th>
<th>Foreign</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>-20</td>
<td>+30</td>
<td>+10</td>
</tr>
<tr>
<td>Y</td>
<td>+20</td>
<td>-10</td>
<td>+10</td>
</tr>
</tbody>
</table>
$A_h, A_f = \text{autarky equilibria}$

$hh', ff' = \text{production frontiers}$

$\frac{dY^h}{dX^h} = \frac{\beta_h}{\alpha_h}, \frac{dY^f}{dX^f} = \frac{\beta_f}{\alpha_f}$  (7)
\[ p^* = \frac{p_x^*}{p_y^*} > \text{MRT} = \frac{\beta_h}{\alpha_h} \Rightarrow p_x^* \alpha_h > p_y^* \beta_h \]  \hspace{1cm} (8)

\[ \therefore \text{If } p^* > p_h^a: \]

\[ p_x^* \alpha_h = w > \beta_h \text{ w } p_y^* \Rightarrow X = \underline{X}, \ Y = 0 \]  \hspace{1cm} (9)
FIGURE 3: EXCESS DEMAND IN HOME COUNTRY

If \( p^* = p_h^a \), \( hh' \) (Figure 3) = 0h' (Figure 2)
FIGURE 5: TRADING EQUILIBRIA

Y (food)

Home country specializes in Y, $p^* < p_h^a$

Foreign country specializes in X, $p^* > p_f^a$

X (non-food)
FIGURE 6: INCREASE IN COUNTRY SIZE

\[ (X_c - X_P) \]
FIGURE 7: LARGE FOREIGN COUNTRY

\[ \text{-(X}_c \text{- X}_P) \quad \text{(X}_c \text{- X}_P) \]