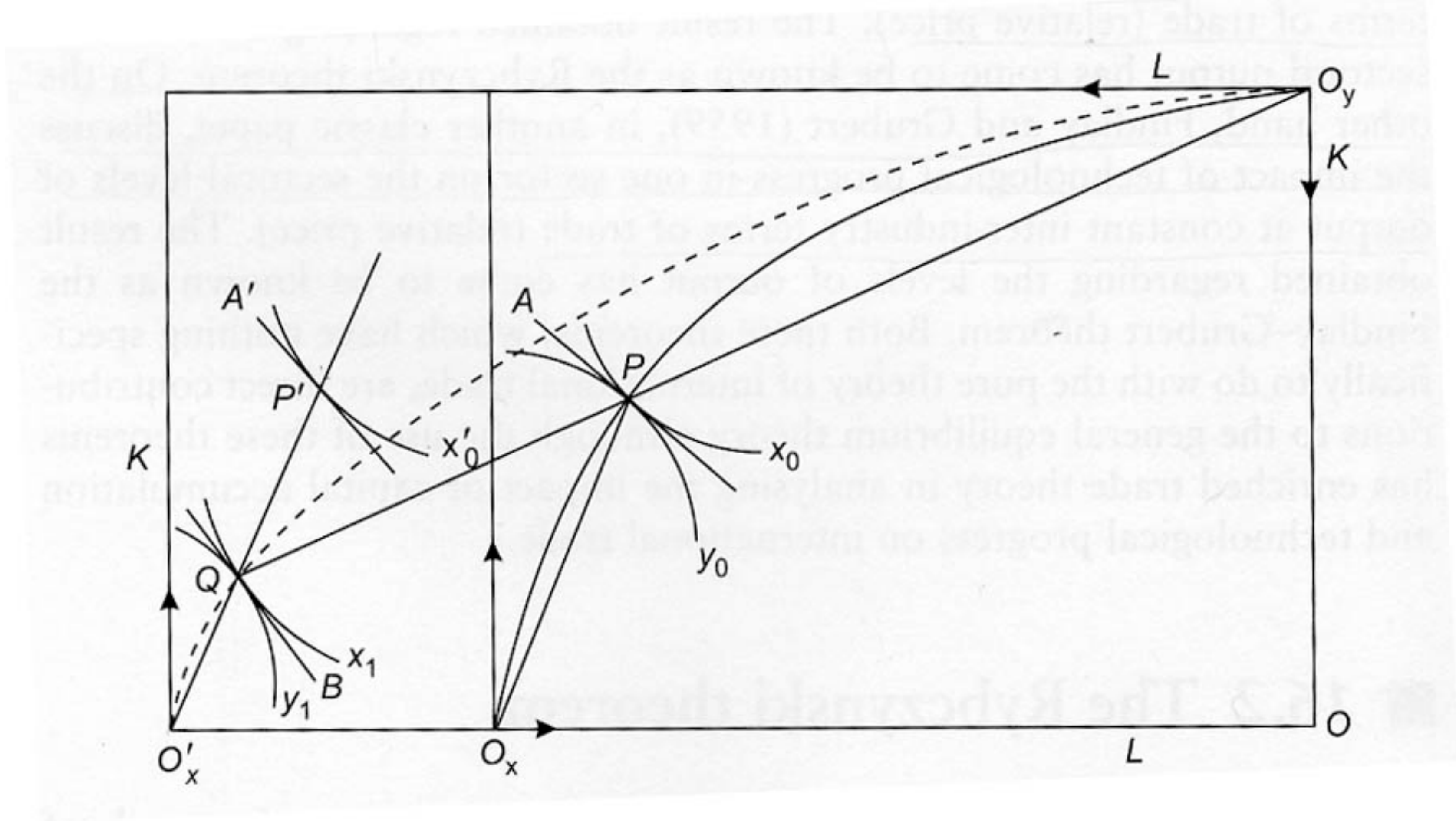
Growth and trade

The Neoclassical Approach

The Rybczynski's theorem

At constant W/r, P_y/P_x , and K/L, an increase in the quantity of one factors leads to an absolute expansion in production of the good that uses that factor more intensively and to an absolute contraction in the production of the good which uses that factor less intensively.



Start from an equilibrium such as P

When endowment of labour increases by an amount OO'_x

equilibrium moves to Q

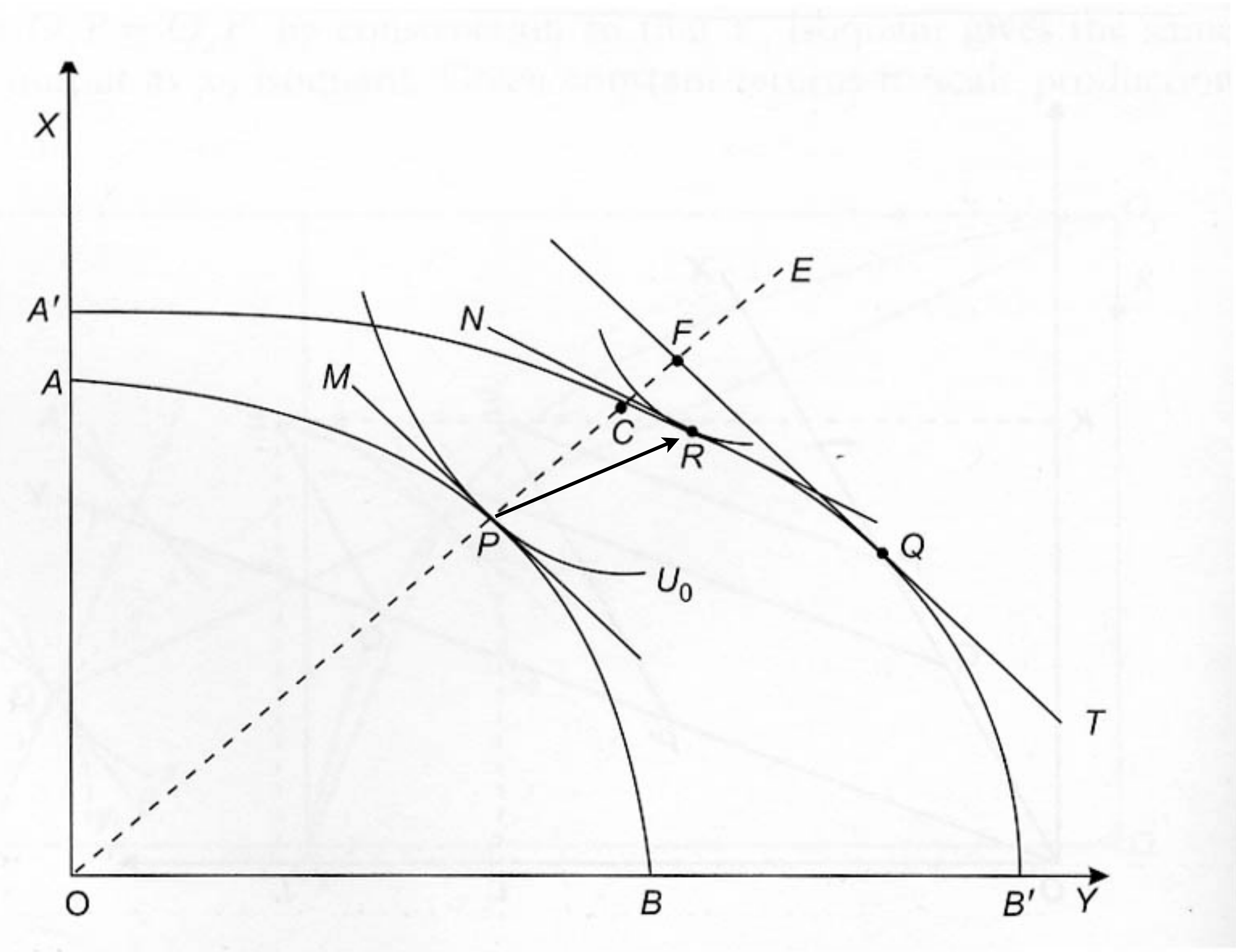
In Q the K/L ratio in both sectors is equal to the one in P

but in Q production of Y rises while

production of X decreases!

Consequences:

The increase in labour endowment deteriorates terms of trade of the Y good (cloth) exporter country



Equilibrium moves from P to R

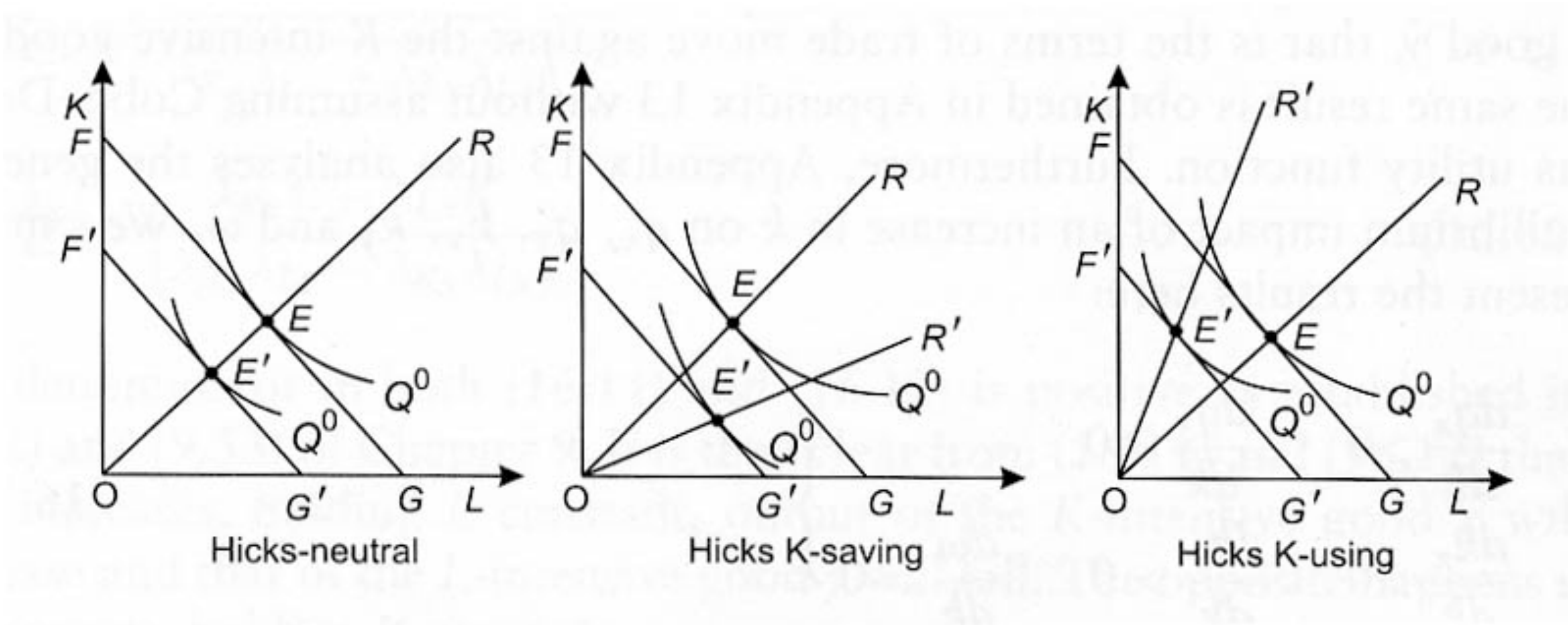
In R the relative price P_y/P_x is lower than in P!

N line is flatter than the M=T lines

The Findlay-Grubert theorem

With a fixed amount of capital and labour, when Hicks-neutral technological progress occurs just in one of the two sectors, then at constant relative prices, production in that sector must increase. Production in the other sector decreases.

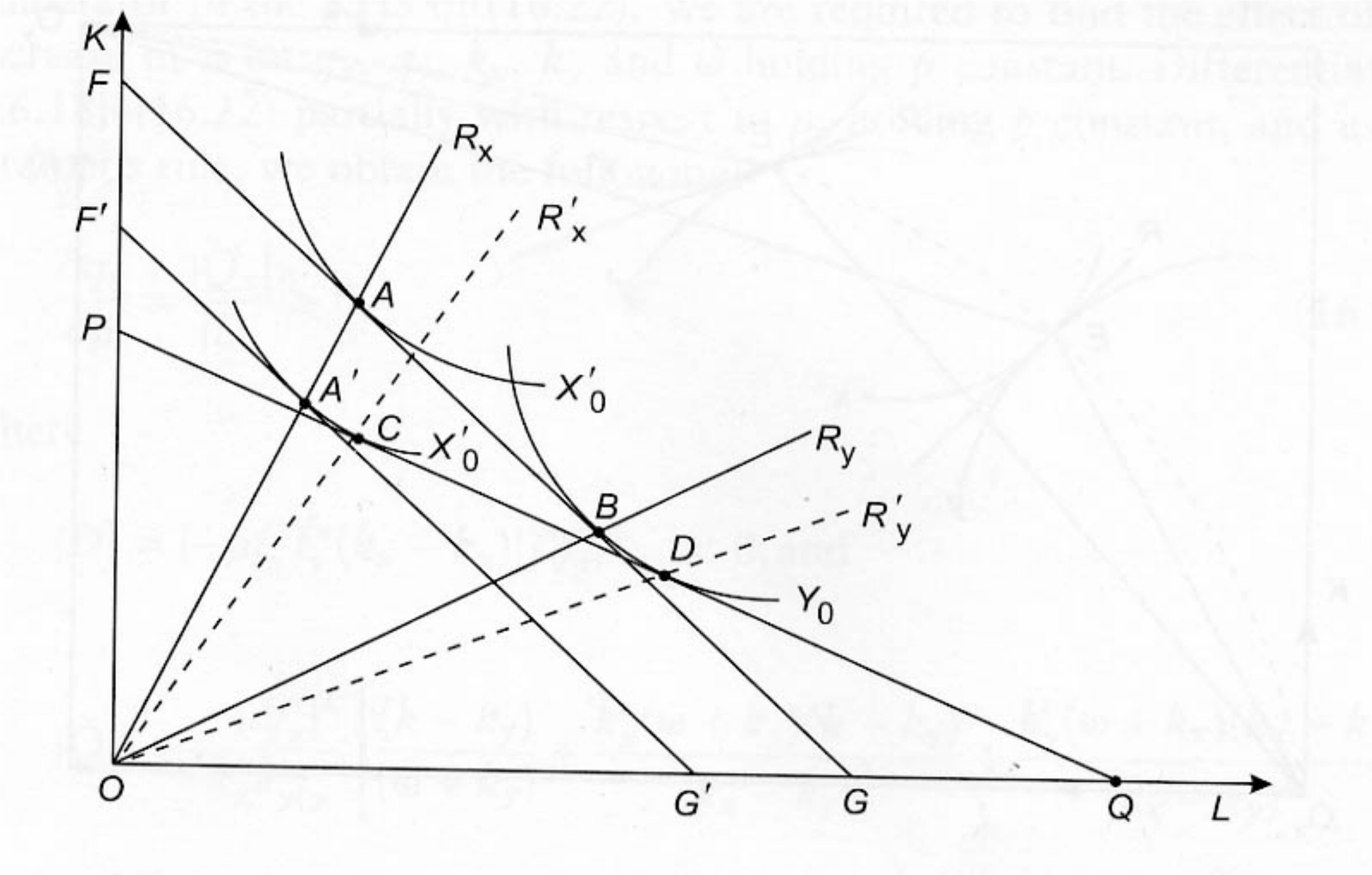
(1) (2) (3)



(1) The same Q_0 output of the good is produced using in the same proportion LESS capital and labour

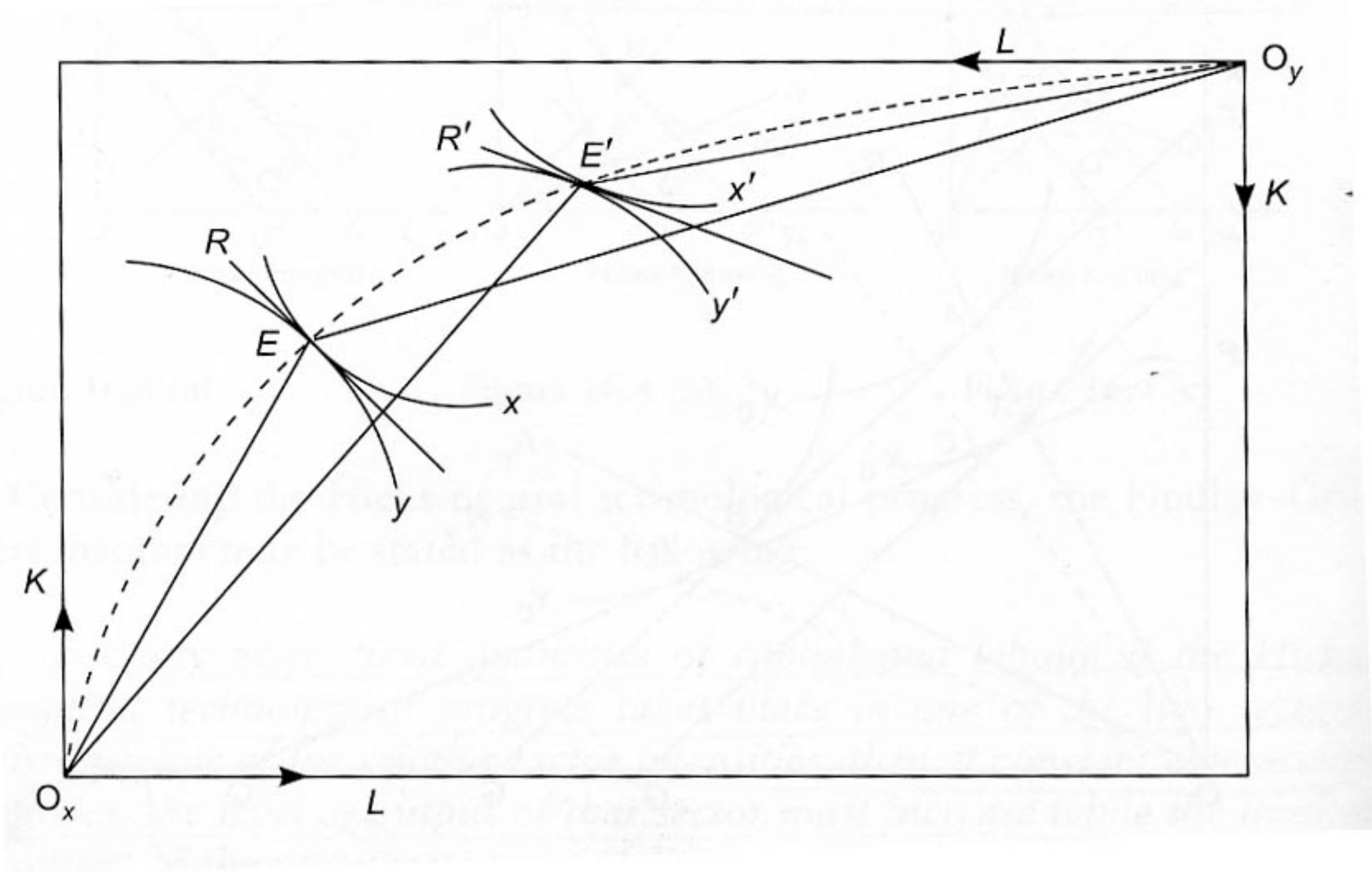
(2) The same Q_0 output of the good is produced using proportionally LESS capital than labour

(3) The same Q_0 output of the good is produced using proportionally LESS labour than capital



Because of neutral technological progress in the X sector, equilibrium moves from A and B points to A' and D

Results: the ratio W/r decreases (PQ line is flatter than FG=F'G')

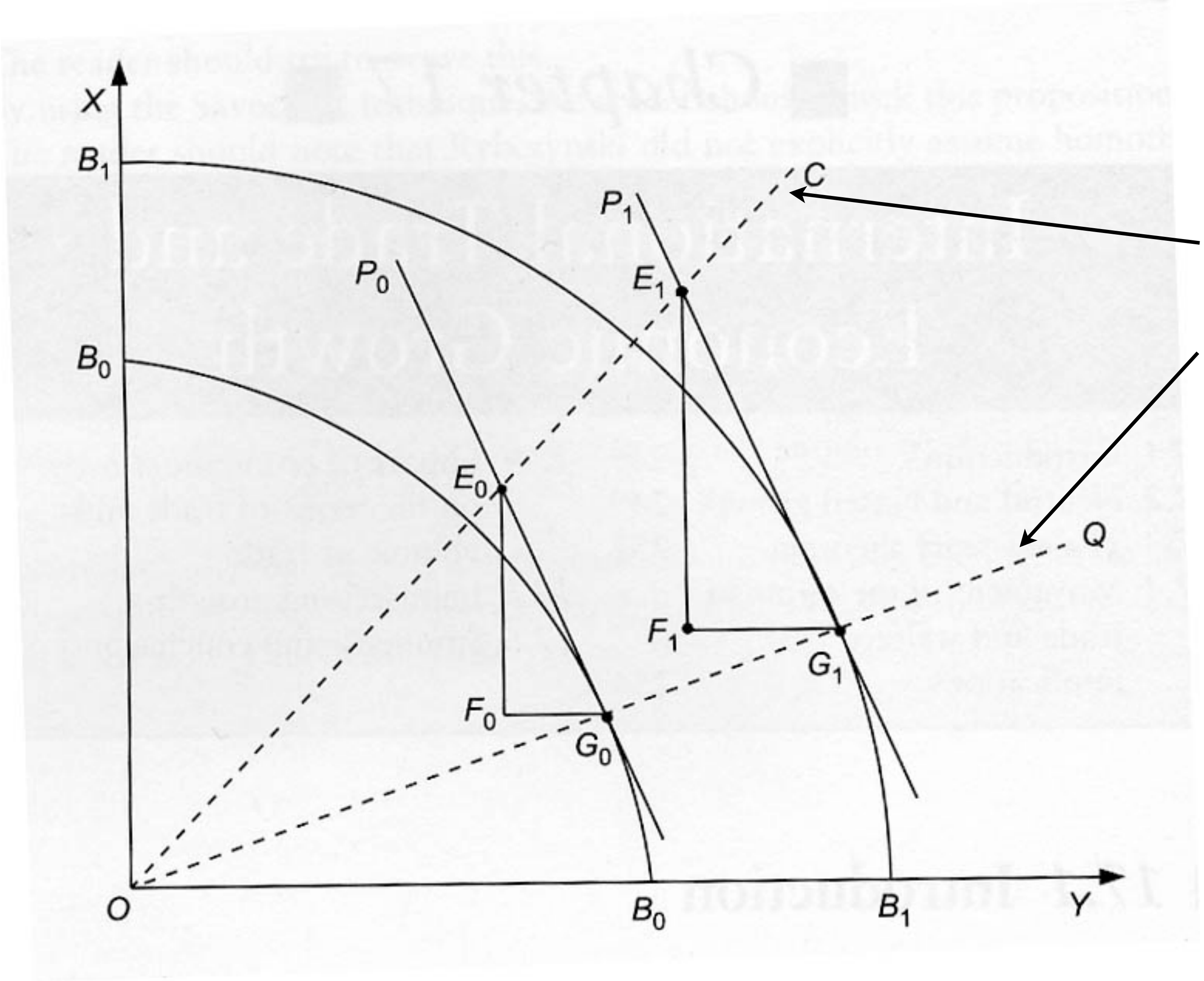


Since W/r decreases, capital intensity goes down in both X and Y sectors

General equilibrium moves from E to E’

More of the X good is produced at the expenses of Y production!

Neutral growth



The economy growth along two paths:

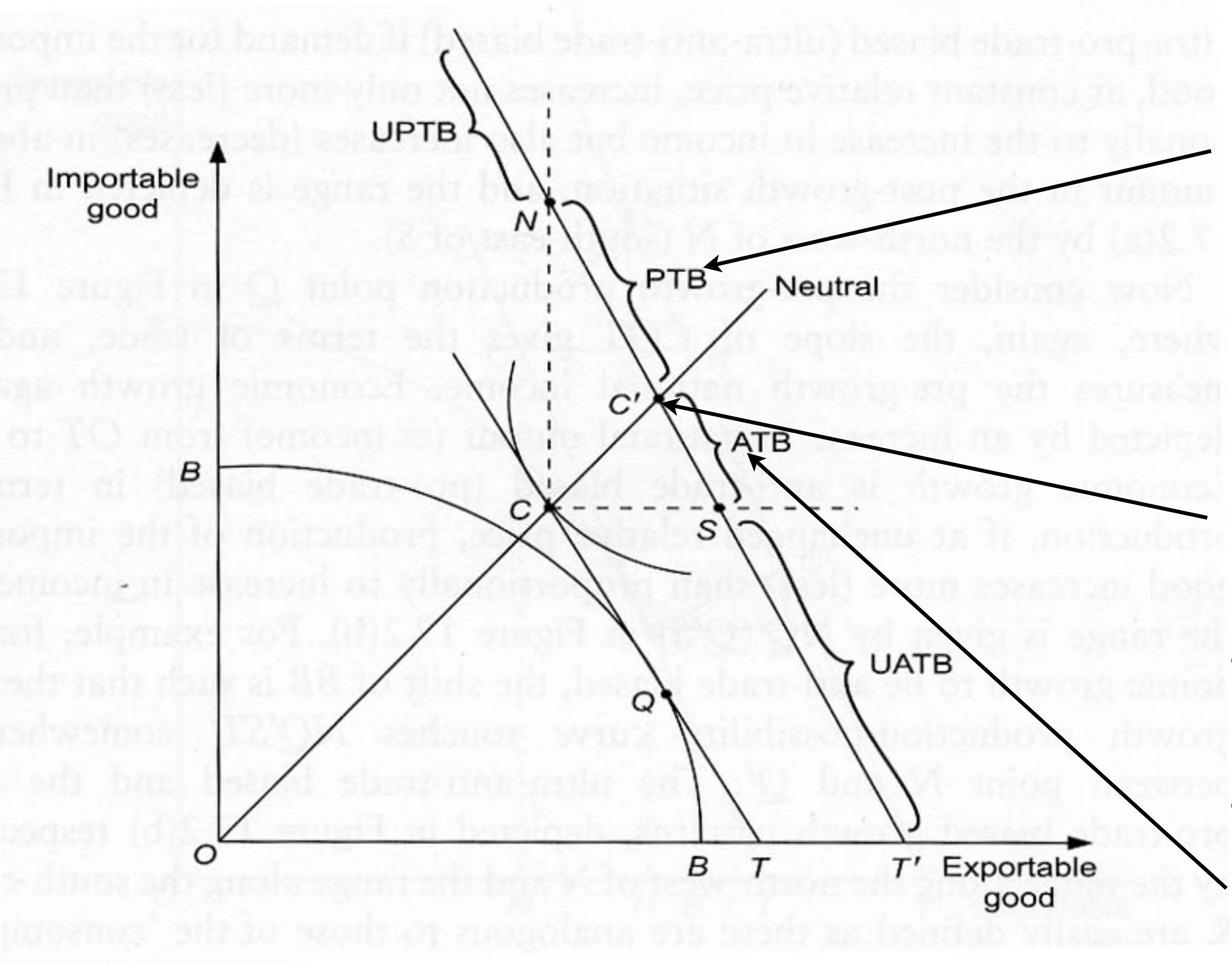
consumption path OC

production path OQ

Relative equilibrium price (terms of trade) does not change: P_0 line is parallel to P_1

If factors endowment arises in the same proportion (dK=dL) or if technological change occurs with the same intensity in both X and Y industries, than terms of trade do not change

Growth and consumption



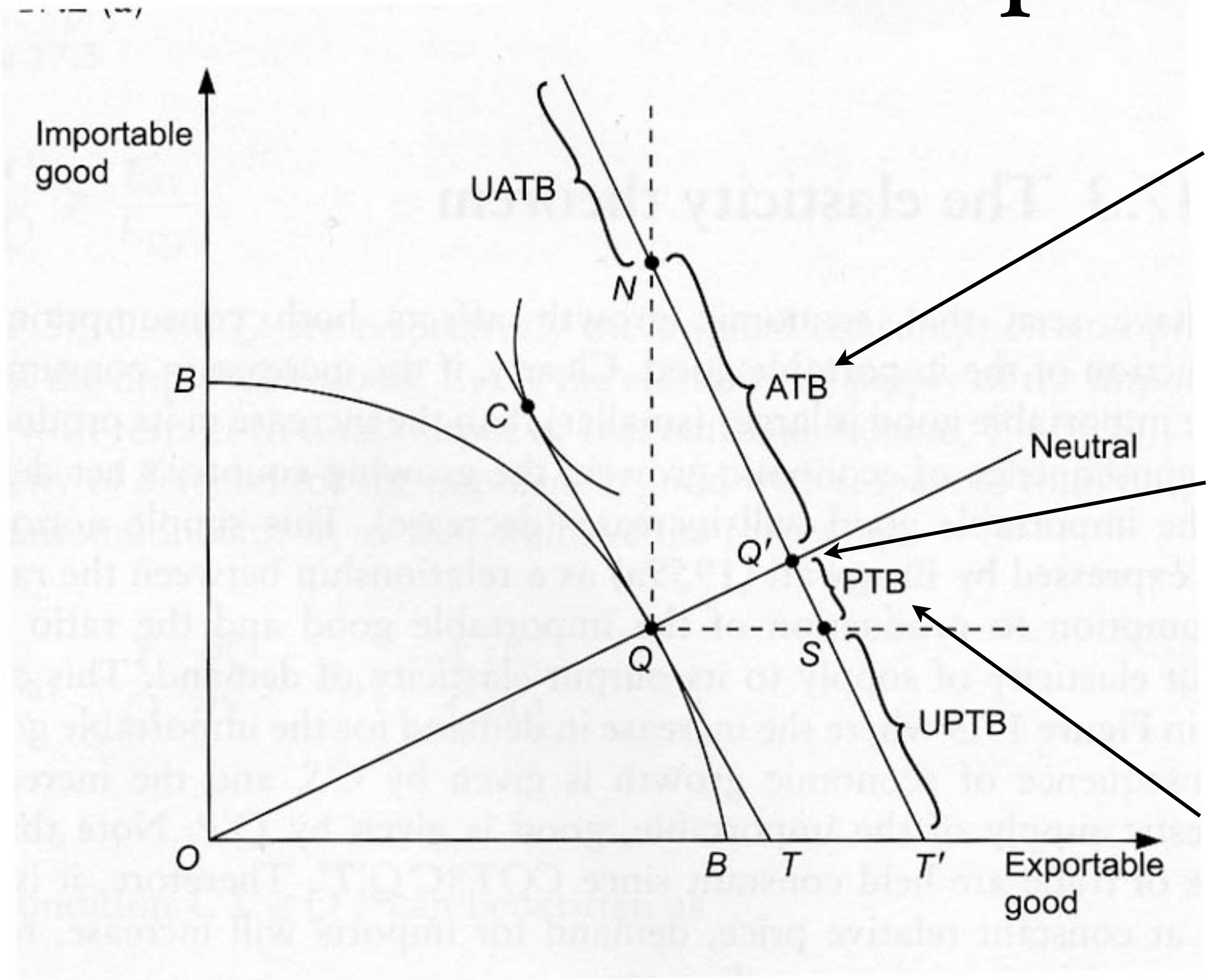
On the T' line, between C' and N, demand for importable goods increases more than demand for exportable goods ("pro trade" growth)

In C' demand for importable and exportable goods changes in the same proportion (neutral growth)

On the T' line, beetween C' e S demand for the exportable good growths more rapidly ("anti trade" growth)

In the zone above N, demand for the exportable good decreases in absolute terms while demand for importable good arises. The opposite occurs below point S

Growth and production



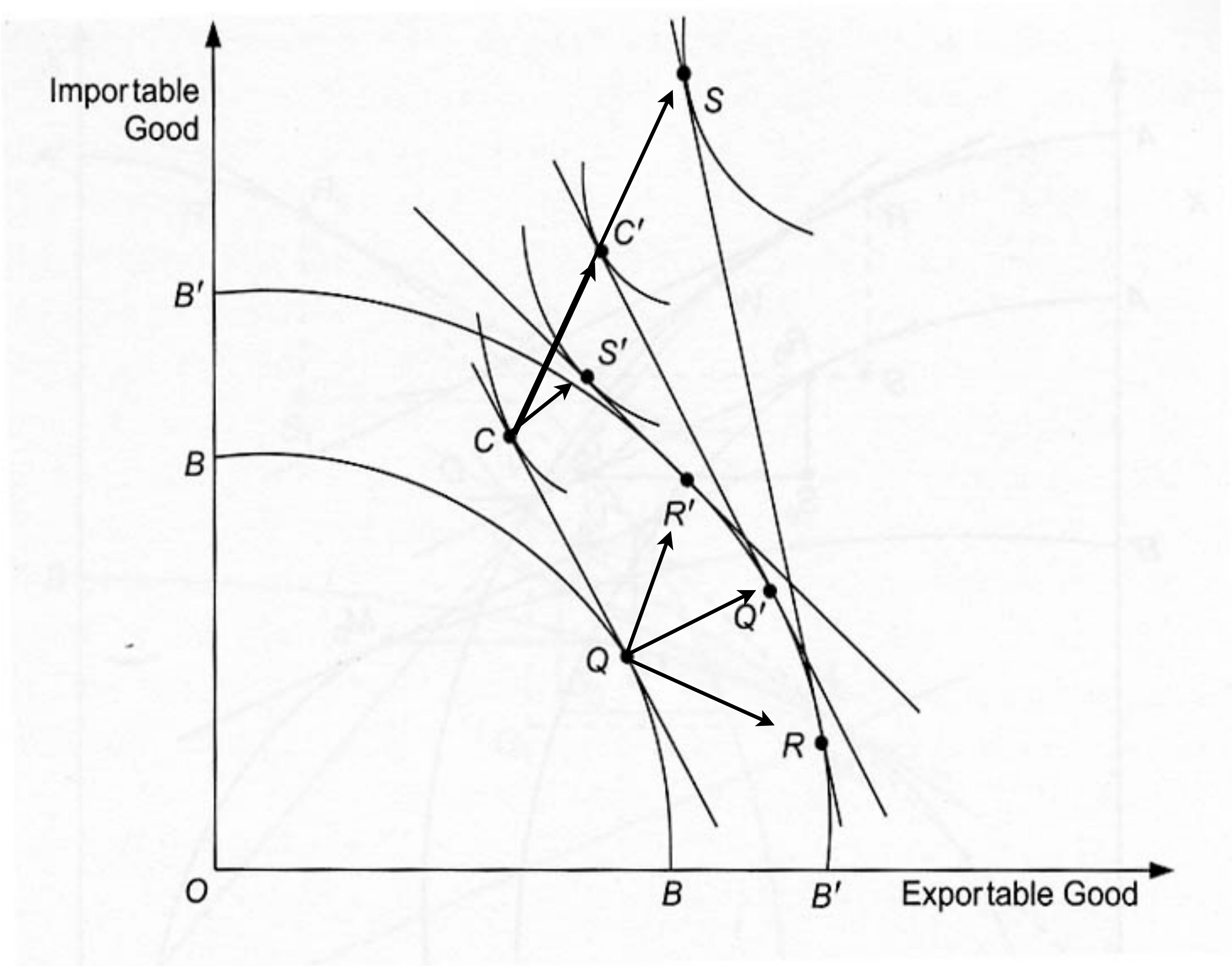
On the T' line between Q' e N production of importable good increases more rapidly than production of exportable good ("anti trade" growth)

In Q', production of both goods increases in the same proportion (neutral growth)

On the T' line, between Q' e S production of the exportable good growths more rapidly ("pro trade" growth)

Above N, production of importable good INCREASES and production of exportable good decreases.
The opposite occurs below the S point

Growth and terms of trade

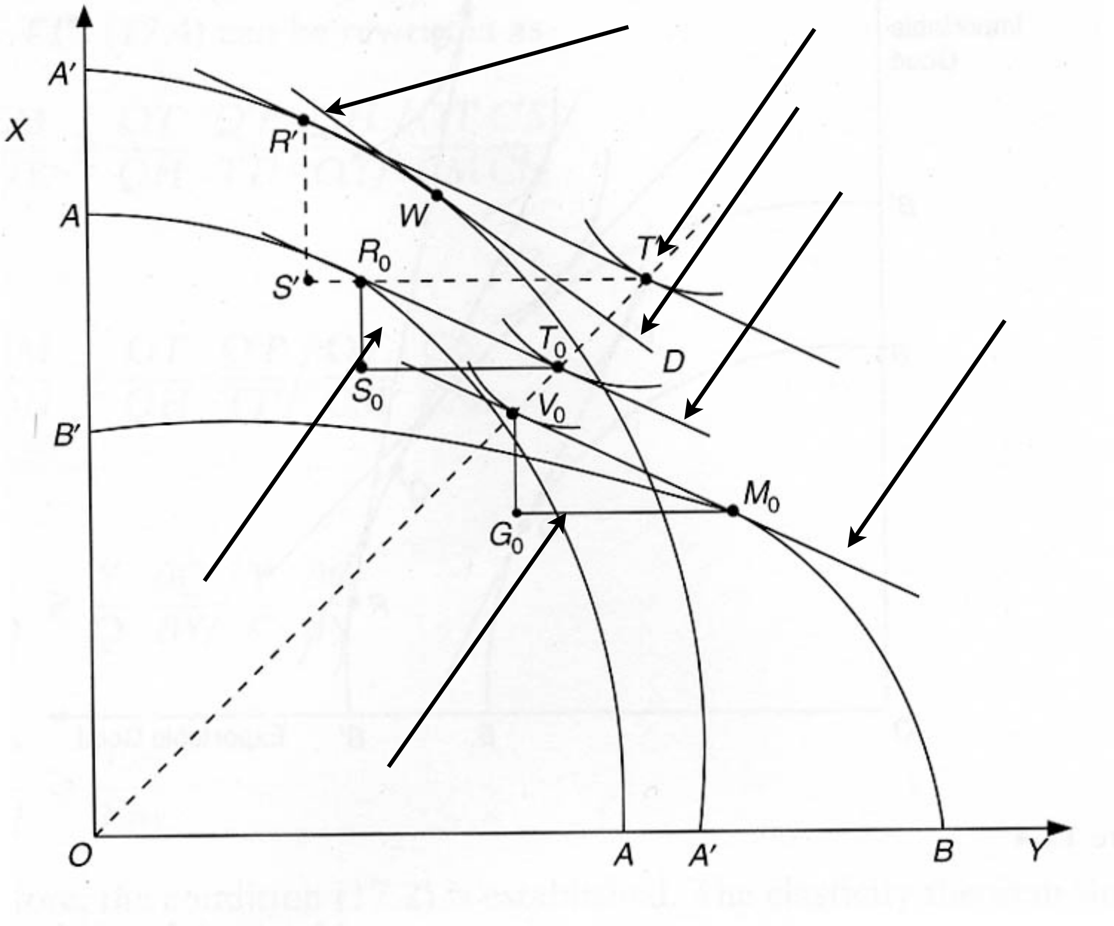


If growth does not modify terms of trade, the change in **real income** is directly proportional to the higher output (from Q to Q' and from C to C')

If growth **improves** terms of trade, then the change in **real income exceeds** output improvement (from Q to R and from C to S)

If terms of trade deteriorates because of growth, change in **real income is smaller** than output improvement (from Q to R' and from C to S')

Growth and terms of trade movements (increase in the capital stock)



Before an increases in the capital stock, the slope of parallel lines R_0T_0 e V_0M_0 measures terms of trade.

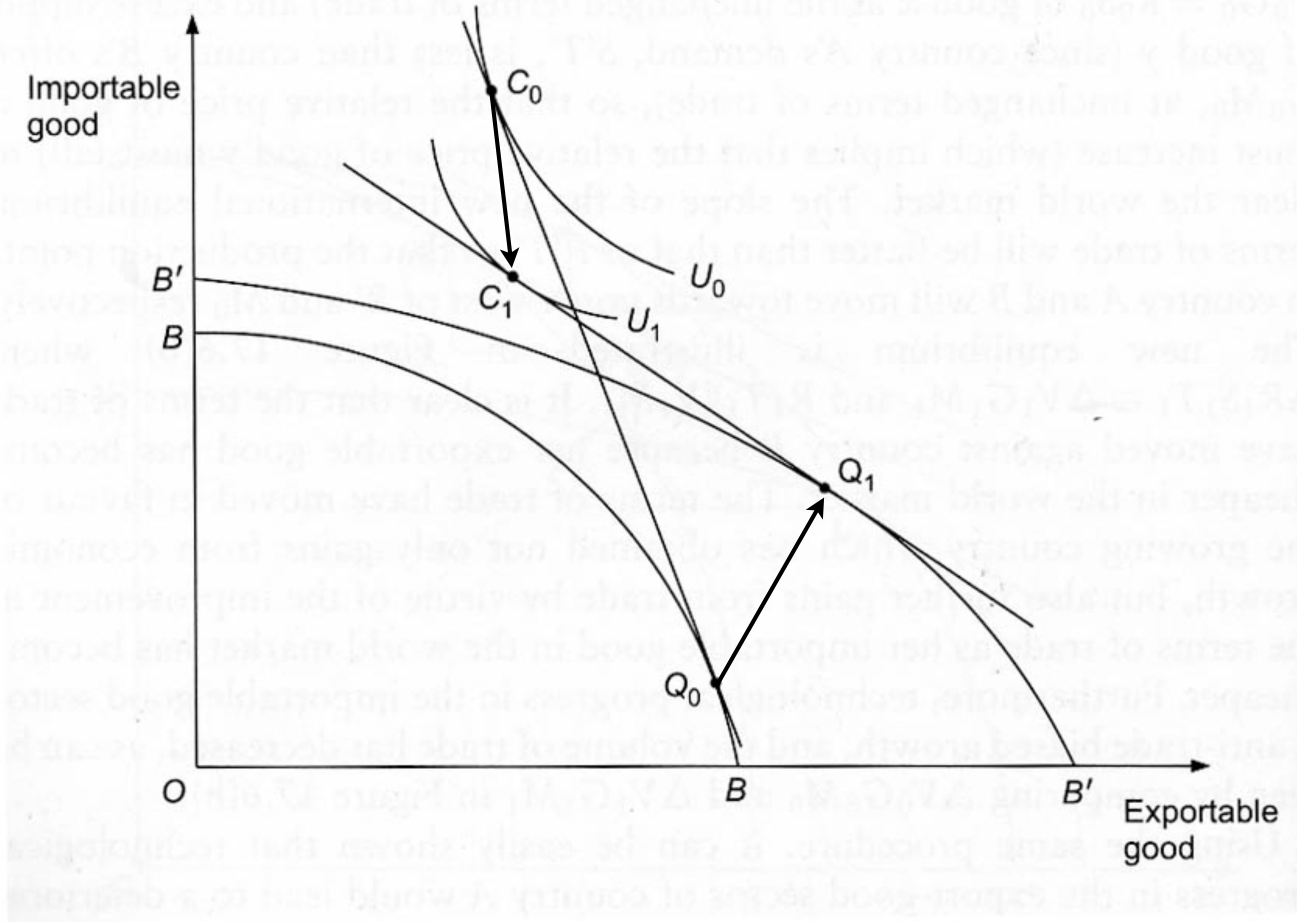
Triangles $R_0T_0S_0$ and $V_0M_0G_0$ represent balance trade between country A and B

After an increase in the capital stock, A produces in R' and consumes in T'. Supply of exports (X) and demand for imports (Y) go up

As a consequence, the relative price of imported good rises

TERMS OF TRADE OF COUNTRY A DETERIORATE (WD line)

Immiserizing growth



In an extreme case growth biased toward exportable goods may deteriorate terms of trade so much that **real income decreases** in absolute terms

Output rises from Q_0 to Q_1
but consumption **diminishes** from C_0 to C_1