Economics of European Integration

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Theory of Economic Integration

Reading: Hitiris 1.2, Appendix A.1

Regional Economic Associations between developed countries (comparable level of economic development; similar but complementary structure of production and demand):

- Short run effects from barriers to trade removal: trade creation, trade diversion
- Medium run effects: enhanced competition, cost reduction (economies of scale, specialization), factor mobility
- Long run effects: growth effects (from changes in the structure of production, exploiting increasing returns to scale in larger markets, diffusion of technological knowledge, access to capital, externalities in R&D or human capital)

Protectionist measures

- import tariffs
- tax discrimination
- variable levies
- quotas
- production subsidies
- state trading
- exchange controls
- other non-tariff barriers

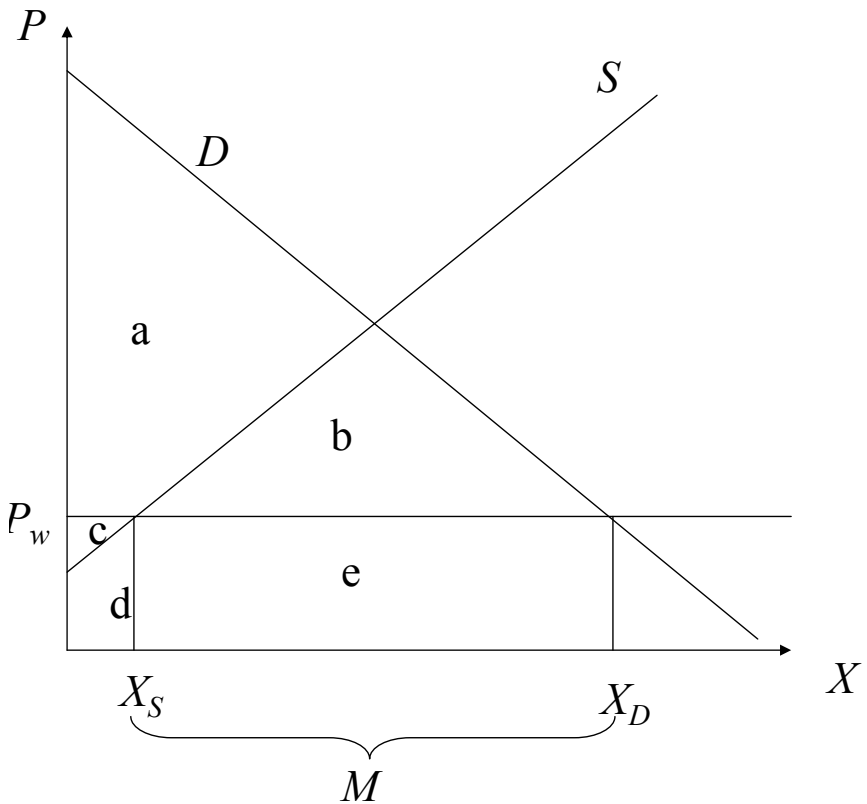
What are the objectives of trade protection?

1. Trade protection in a Small Open Economy

Simplifying assumptions:

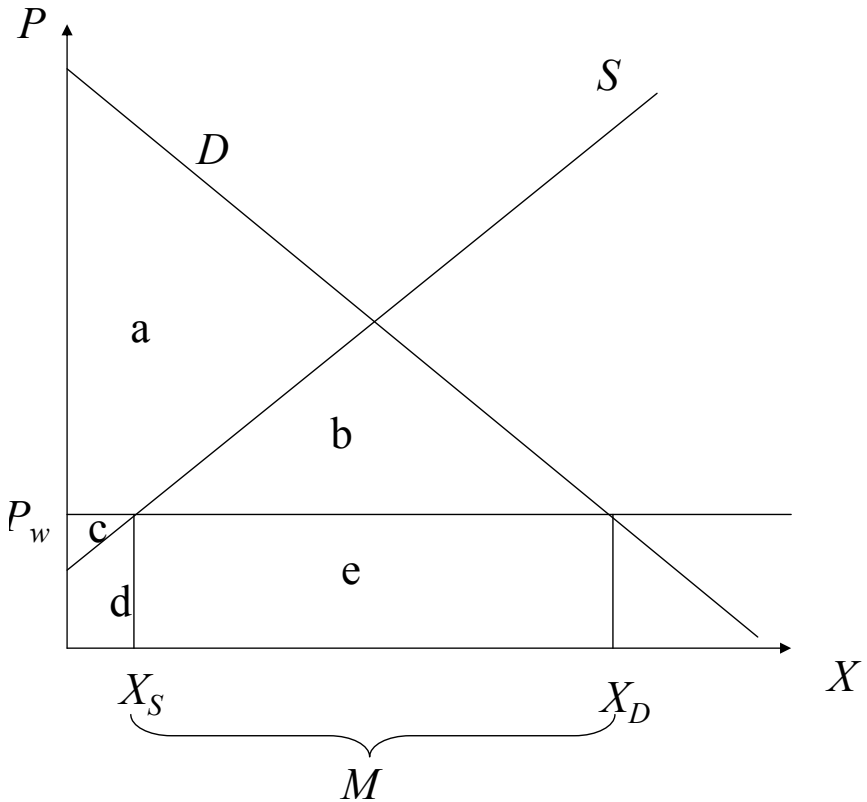
- partial equilibrium, market for a homogeneous good X
- price-taking country (i. e. "small" economy)
- perfect competition in factor and goods markets
- production factors fully employed and mobile between industries but immobile between countries
- no transport cost
- no distortions except tariffs

a) Free Trade in a Small Open Economy



Free trade equilibrium at world market price P_w,
Imports $M = D(P_w) - S(P_w)$

a) Free Trade in a Small Open Economy

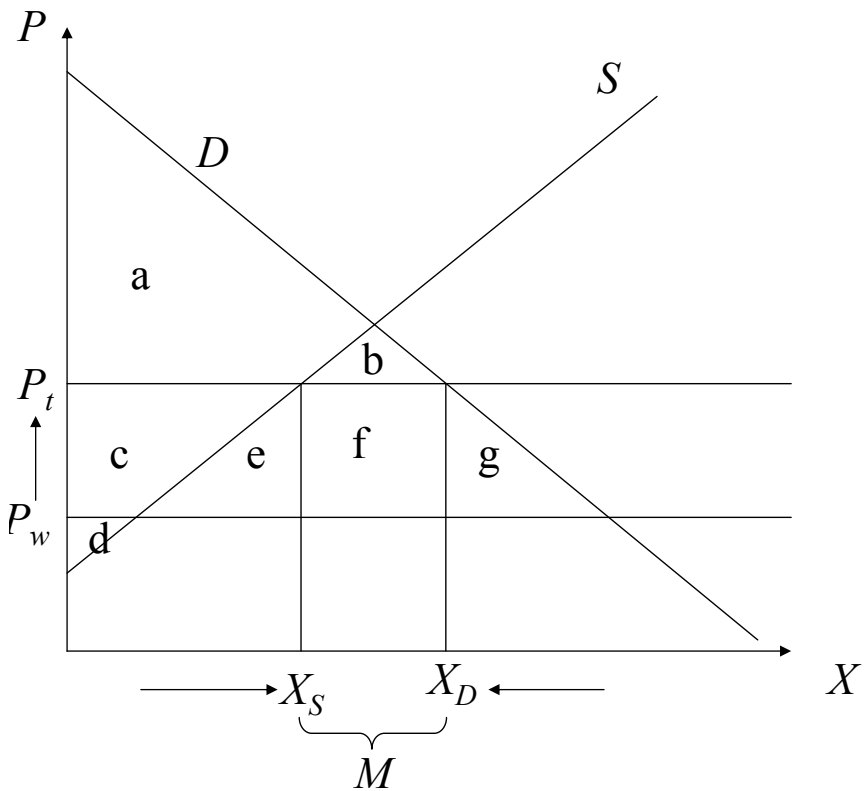


Consumers' willingness to pay: **a+b+c+d+e**
Expenditures: **c+d+e**
Consumer surplus: a+b

Production costs: **d**
Producer income: **c+d**
Producer surplus: c

Social Welfare: a+b+c

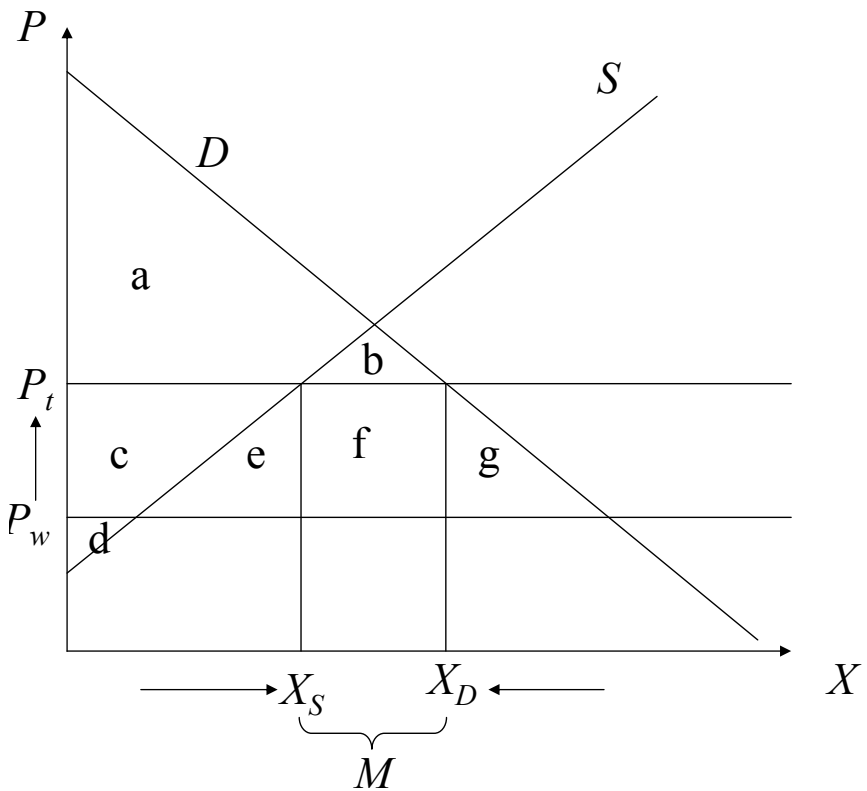
b) Tariff in a Small Open Economy



Introduce a tariff t on imports.

Price effect: price increases to $P_t = P_w + t$

b) Tariff in a Small Open Economy



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Demand effect: demand at the higher price drops

Production effect: at the higher price, domestic production increases

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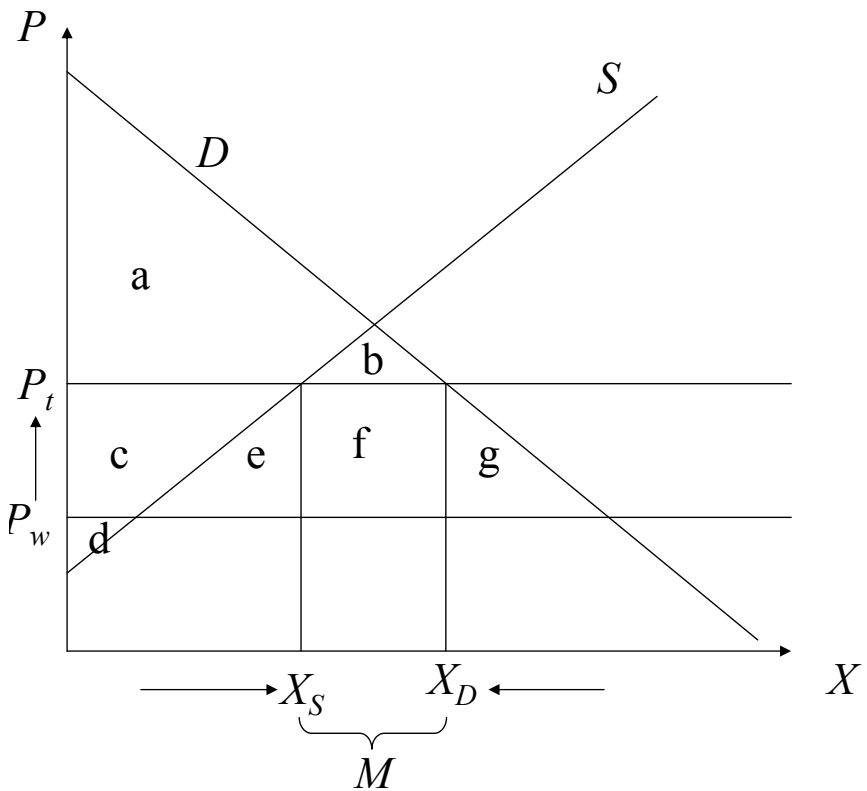


Introduce a tariff t on imports.

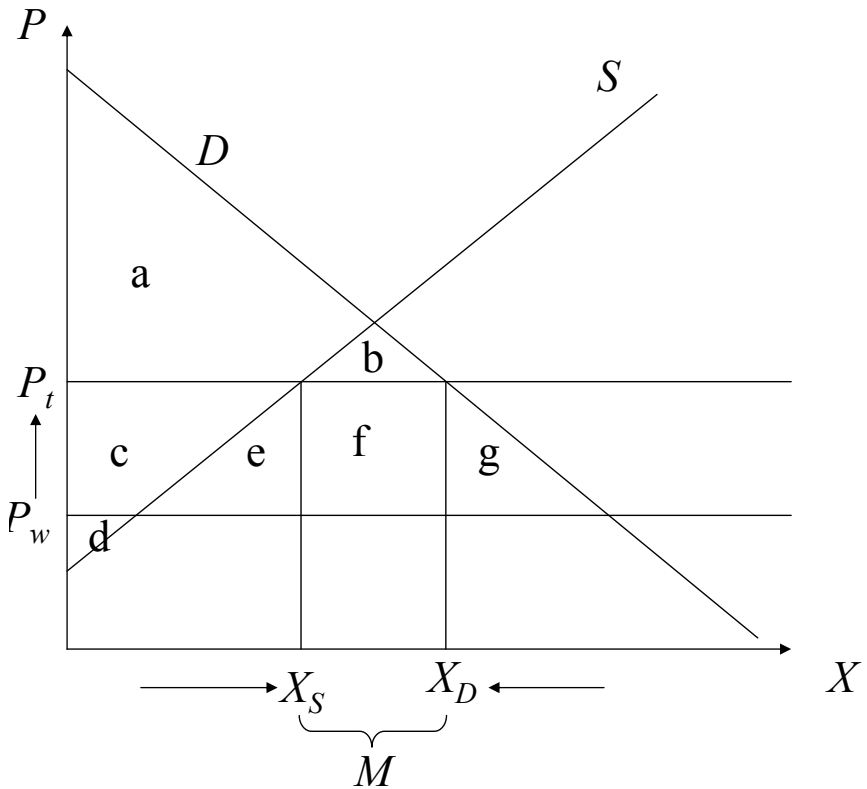
Price effect: price increases to $P_t = P_w + t$

Demand effect: demand at the higher price drops

Production effect: at the higher price, domestic production increases

Import effect: import demand is reduced

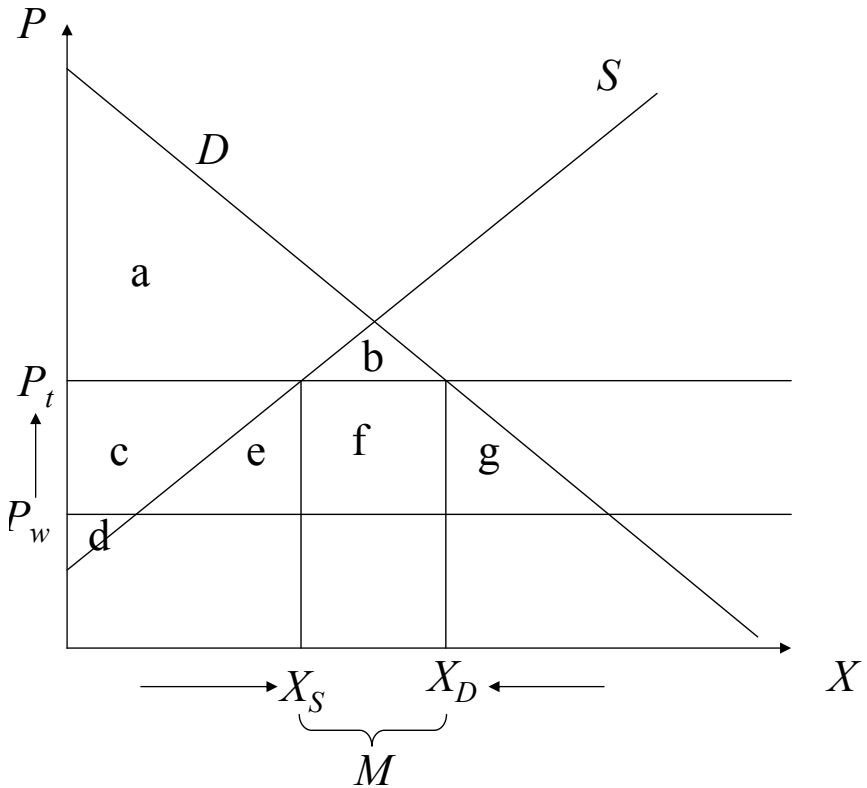
b) Tariff in a Small Open Economy



Consumer surplus is reduced by **c+e+f+g**

Producer surplus increases by **c** (redistribution from consumers)

b) Tariff in a Small Open Economy



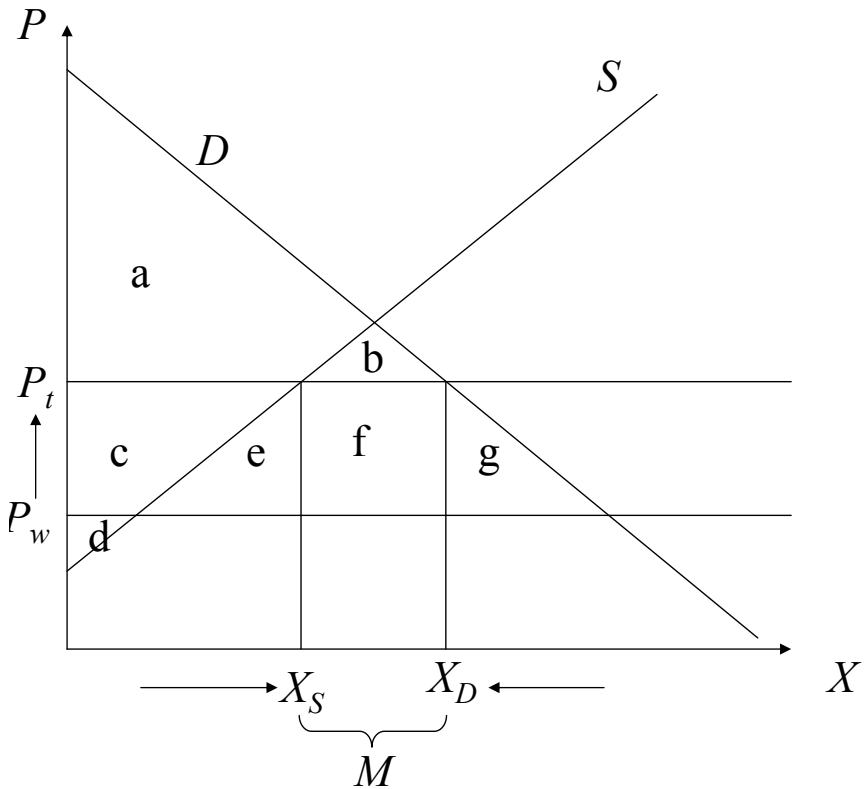
Consumer surplus is reduced by **c+e+f+g**

Producer surplus increases by **c** (redistribution from consumers)

Government receives import tariff **f** (redistribution from consumers)

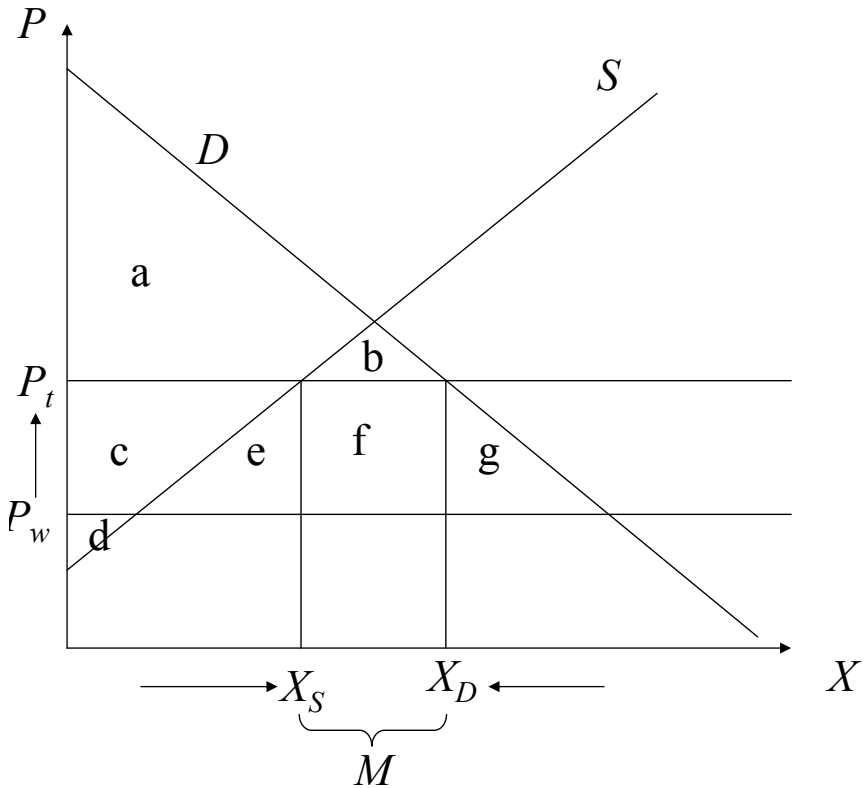
Social Welfare: a+b+c+d+f

b) Tariff in a Small Open Economy



Welfare loss compared to free trade: e+g

b) Tariff in a Small Open Economy



Welfare loss compared to free trade: e+g

e: waste of resources, domestic production is more expensive than buying abroad

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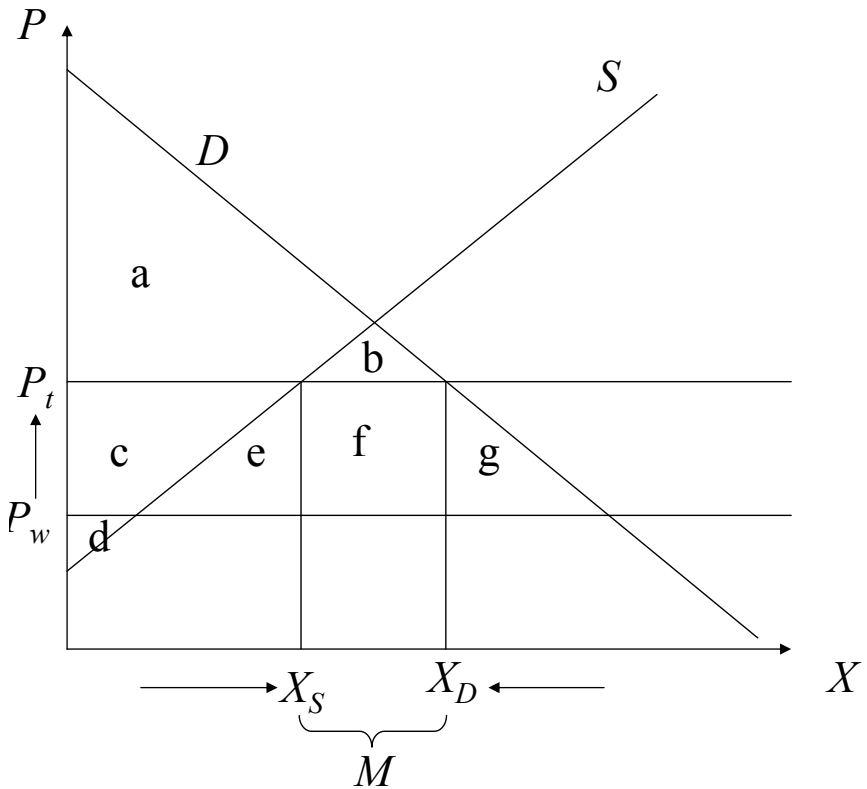
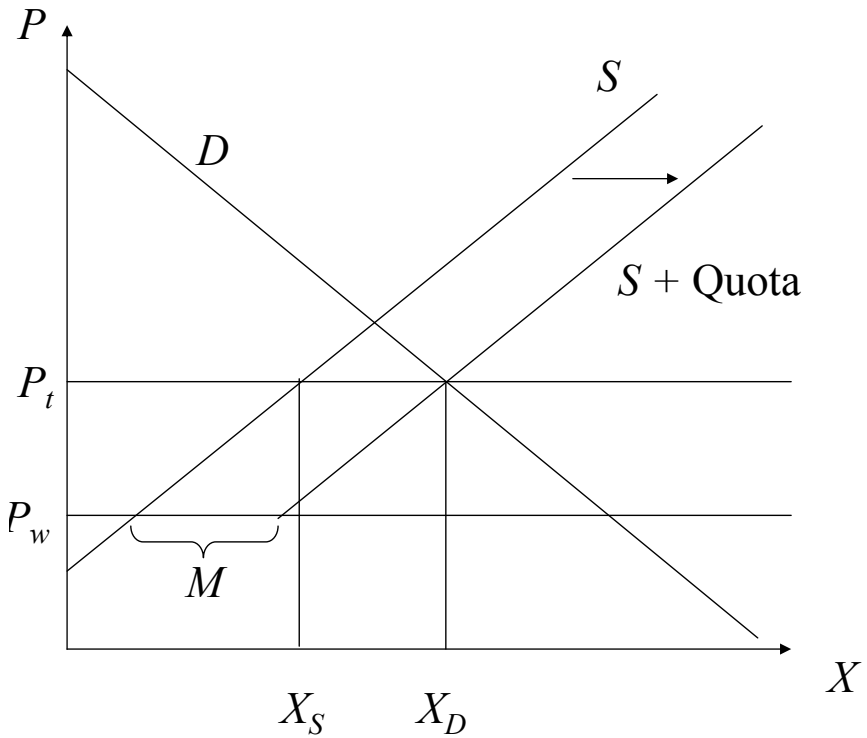


Welfare loss compared to free trade: e+g

e: waste of resources, domestic production is more expensive than buying abroad

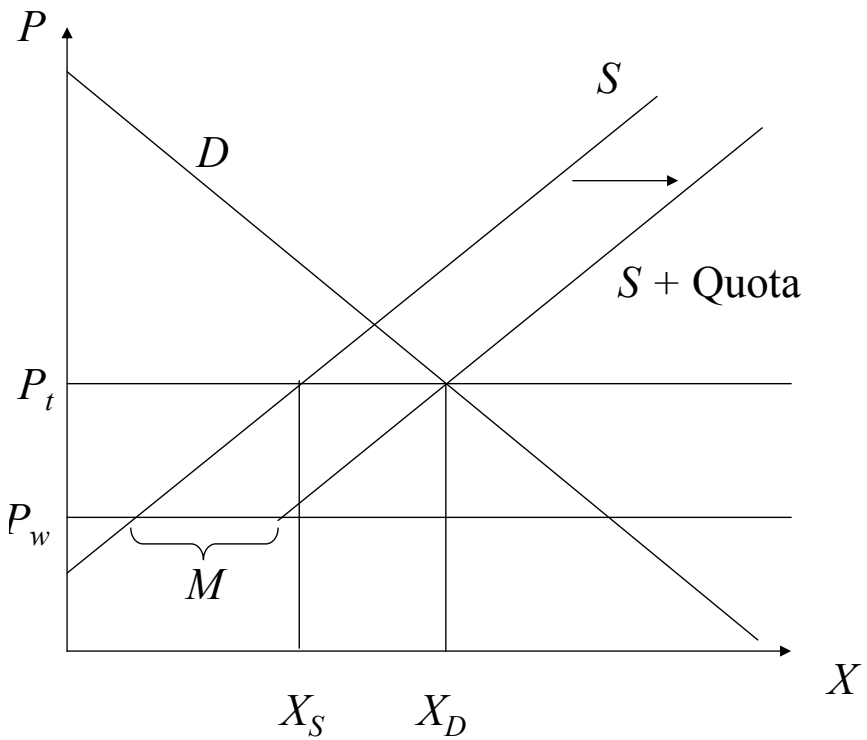
g: loss of consumption surplus

c) Import Quota in a Small Open Economy



Introduce an import quota (maximum amount) with an import effect identical to that of the tariff.

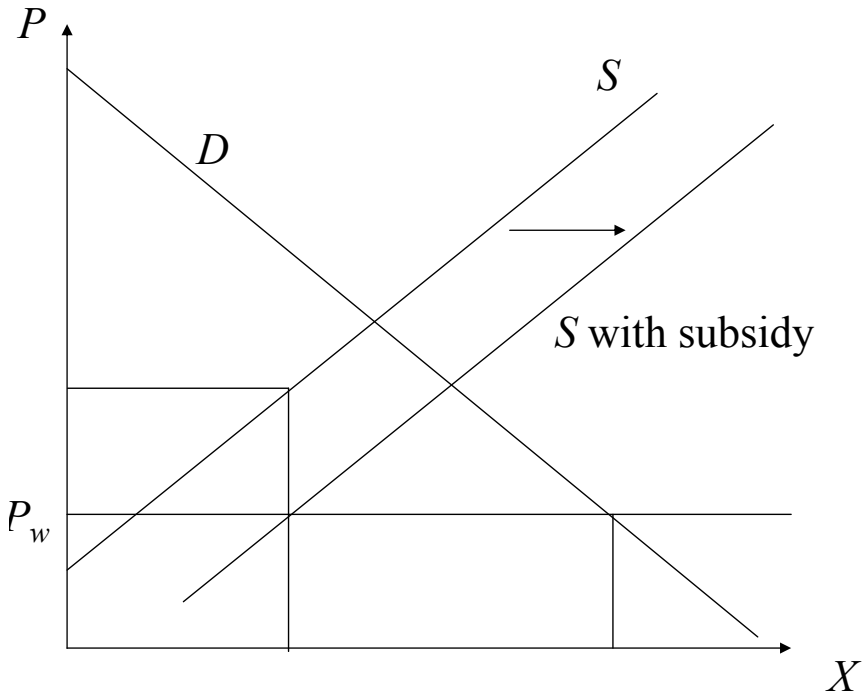
c) Import Quota in a Small Open Economy



Introduce an import quota (maximum amount) with an import effect identical to that of the tariff.

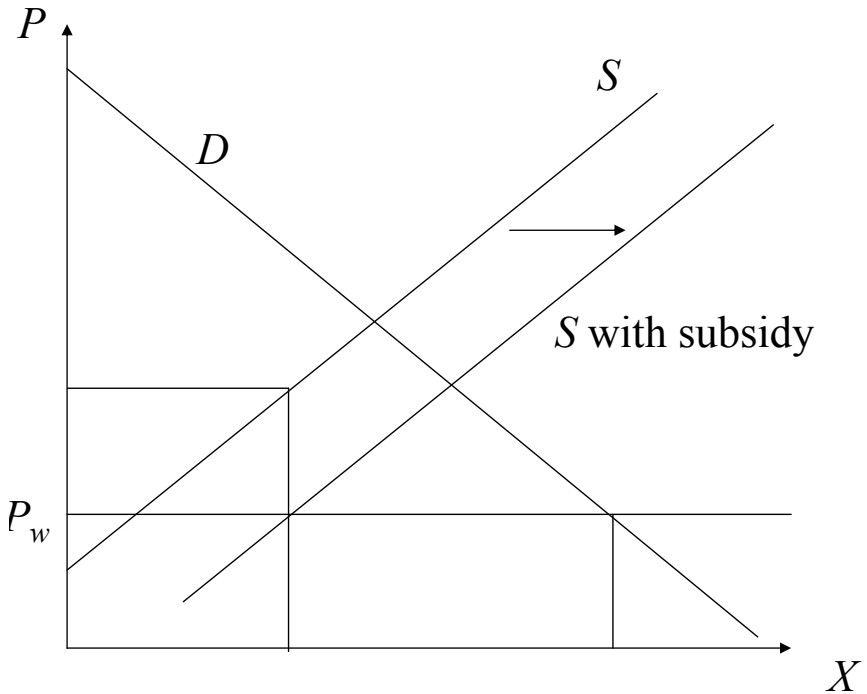
Equilibrium is equivalent to that with a tariff (provided the government sells import licences)

d) Production Subsidy in a Small Open Economy



Introduce production subsidies s with production effect identical to that of the tariff.

d) Production Subsidy in a Small Open Economy



Introduce production subsidies s with production effect identical to that of the tariff.

Welfare loss is less because consumer price is not distorted.

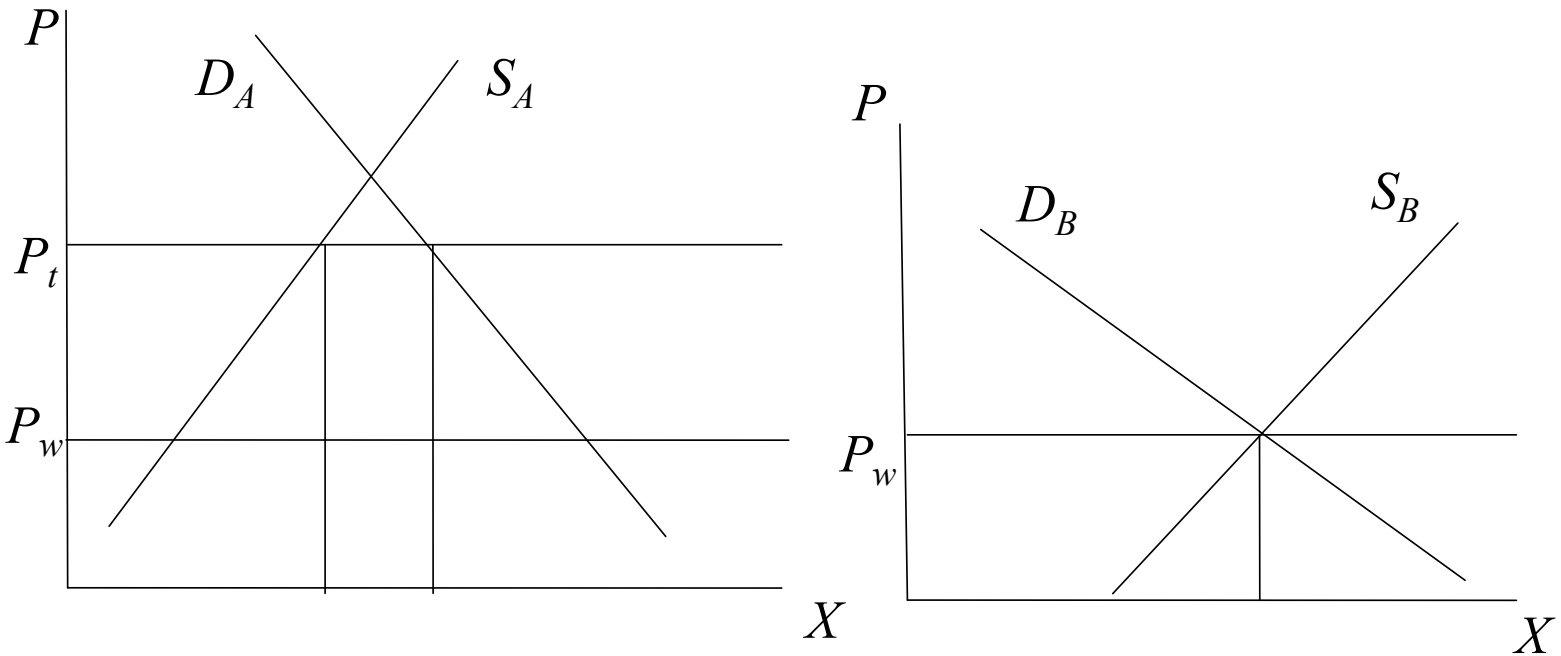
2. Customs Union: Trade Creation and Diversion

Customs Union:

- no trade barriers among members
- common external tariff (cet)

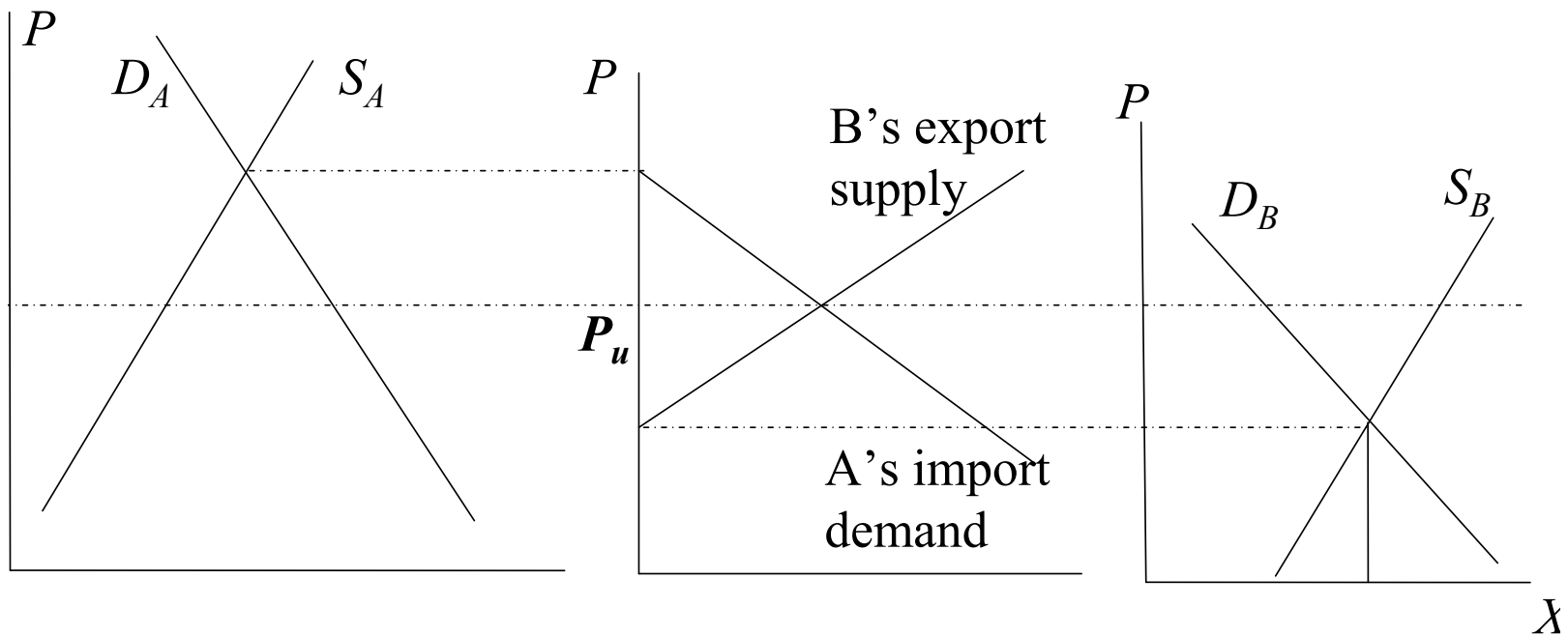
2. Customs Union: Trade Creation and Diversion

Before Customs Union: Two small countries A and B.
A uses a tariff to protect national production.



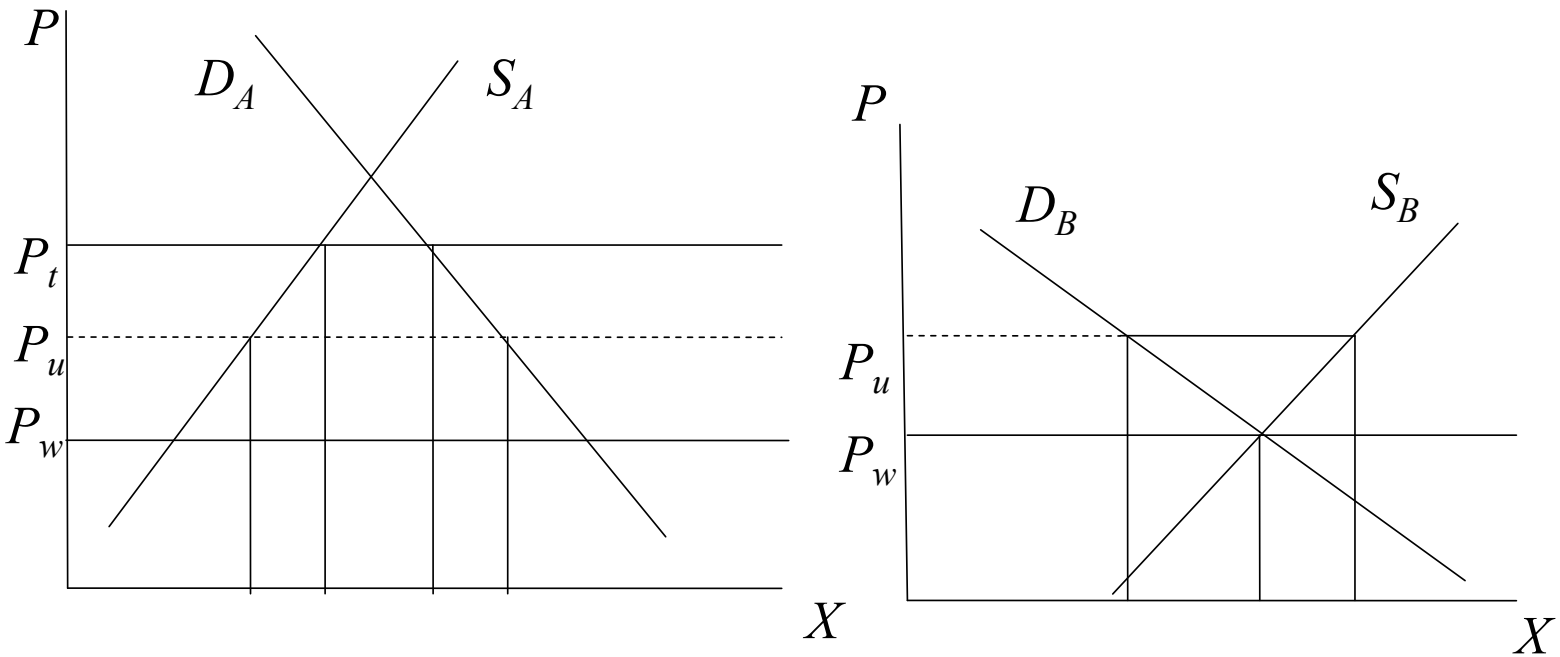
2. Customs Union: Trade Creation and Diversion

A and B form a Customs Union with a Common External Tariff (CET).
Union Price is P_U where $M_A(P_U) = X_B(P_U)$



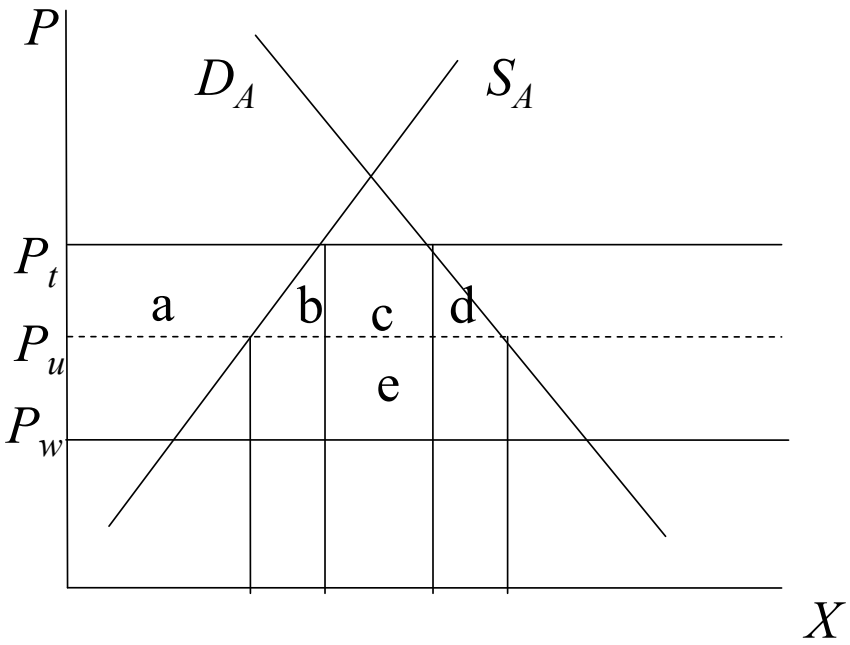
2. Customs Union: Trade Creation and Diversion

Equilibrium is reached at P_U and no imports from the Rest of the World (ROW) if $P_U < P_W + CET$



2. Customs Union: Trade Creation and Diversion

Effects on importing Country A



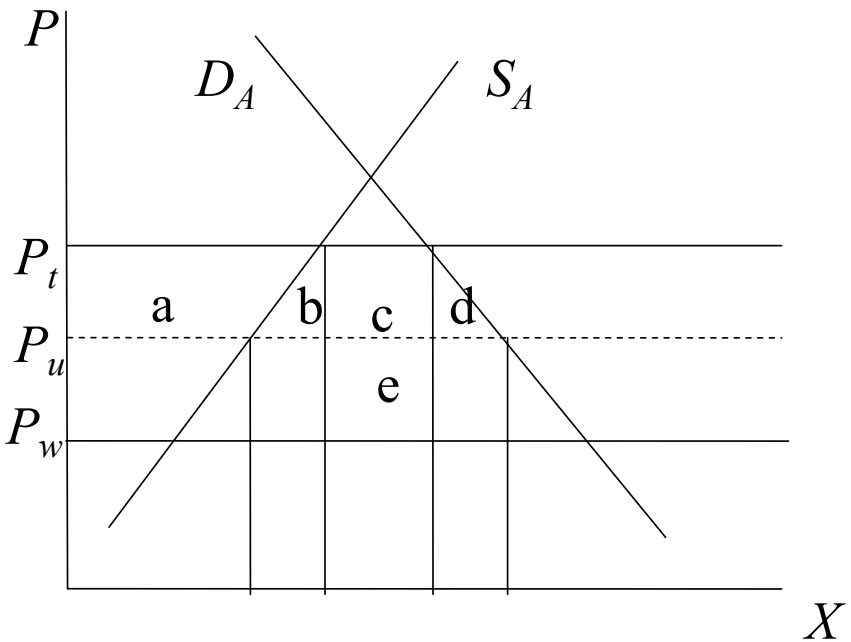
Price drops from P_t to P_U

At the lower price, consumption increases, production drops

Imports have to increase to satisfy excess demand

2. Customs Union: Trade Creation and Diversion

Effects on importing Country A



Before CU, all imports came from ROW at price P_W (consumers paid $P_t = P_W + t$, P_W to ROW and t to government)

2. Customs Union: Trade Creation and Diversion

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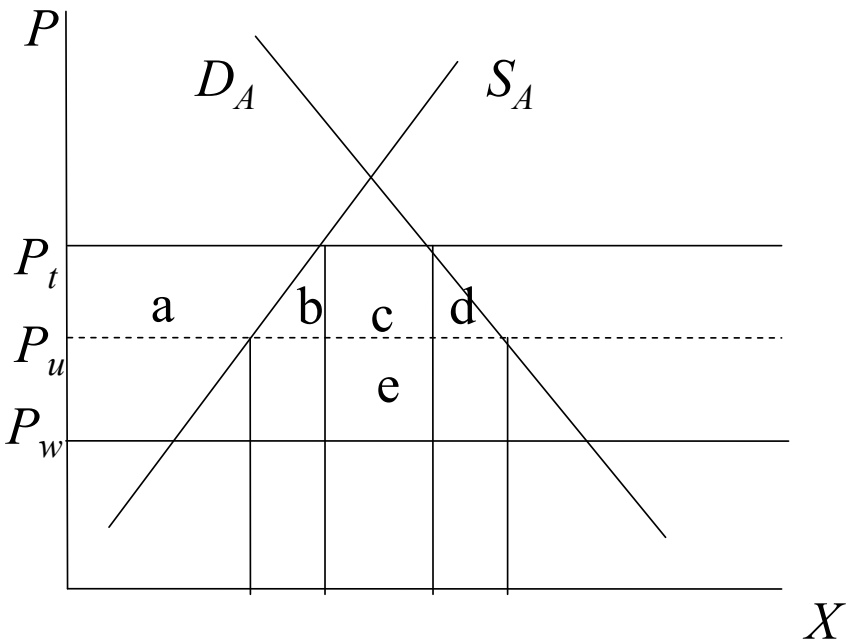
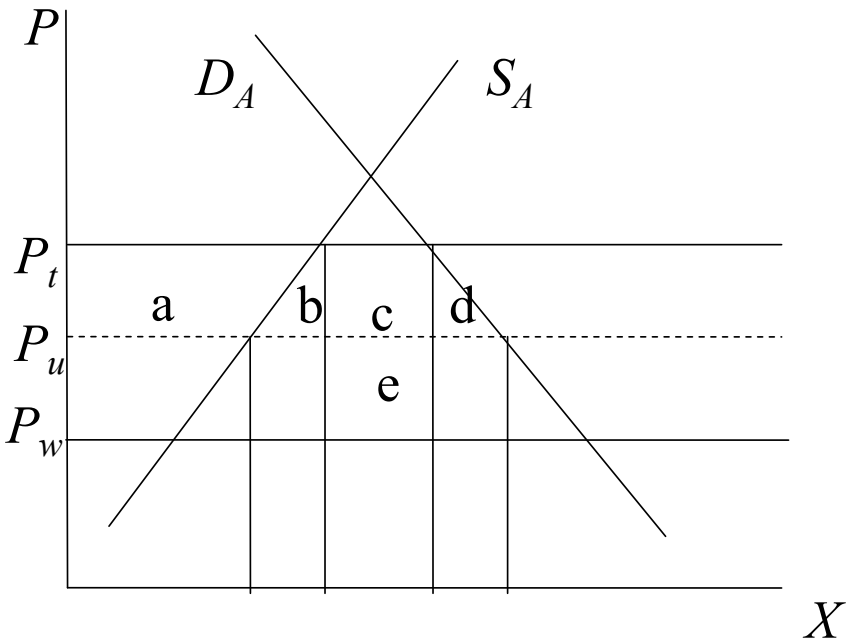


Before CU, all imports came from ROW at price P_W (consumers paid $P_t = P_W + t$, P_W to ROW and t to government)

Now, all imports come from B at price P_U:
Substitute the decrease in national production; substitute imports from ROW; allow national consumption to expand

2. Customs Union: Trade Creation and Diversion

Effects on importing Country A



Welfare changes:

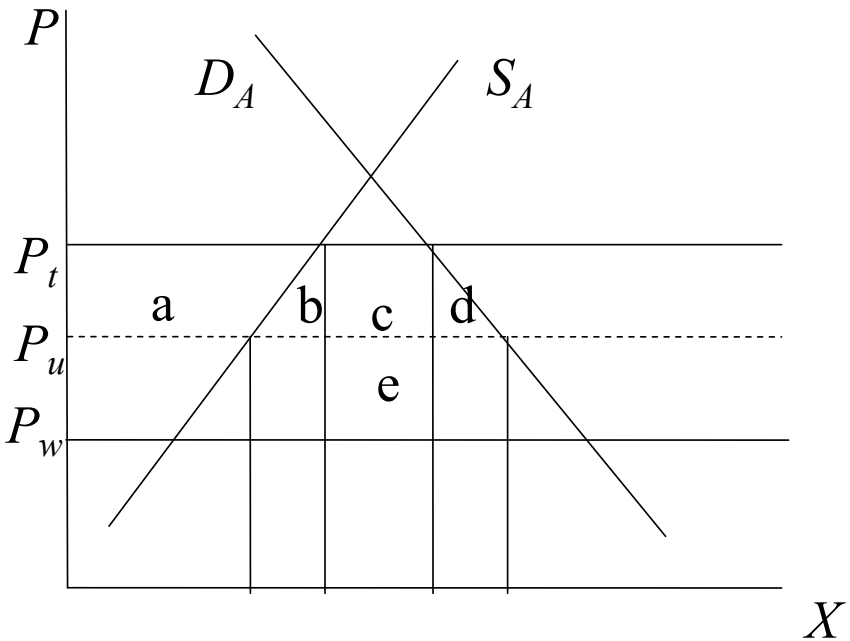
Consumers surplus increases by **a+b+c+d**

Producer surplus decreases by **a**

Government looses tariff income **c+e**

2. Customs Union: Trade Creation and Diversion

Effects on importing Country A



Welfare changes:

Consumers surplus increases by **a+b+c+d**

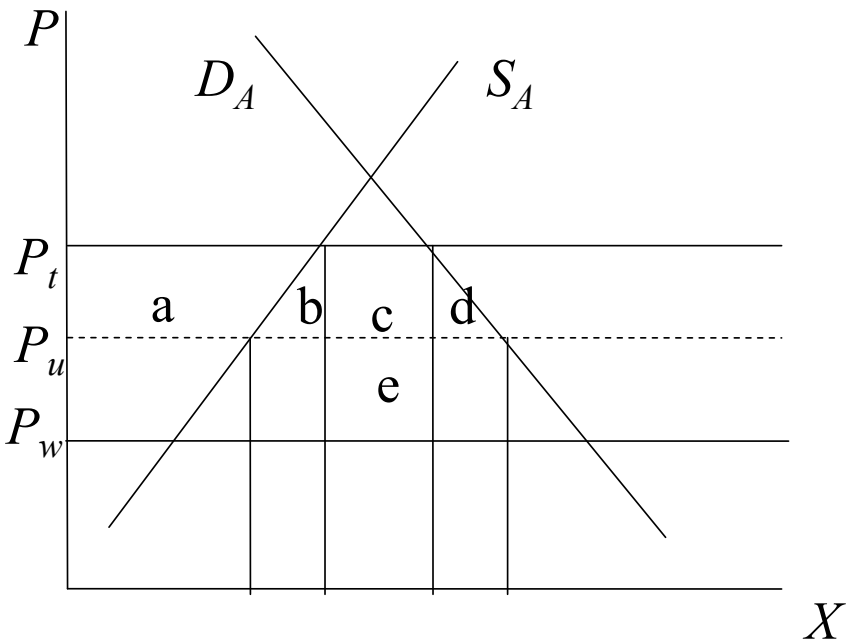
Producer surplus decreases by **a**

Government looses tariff income **c+e**

Net change: **+b+d-e**

2. Customs Union: Trade Creation and Diversion

Effects on importing Country A

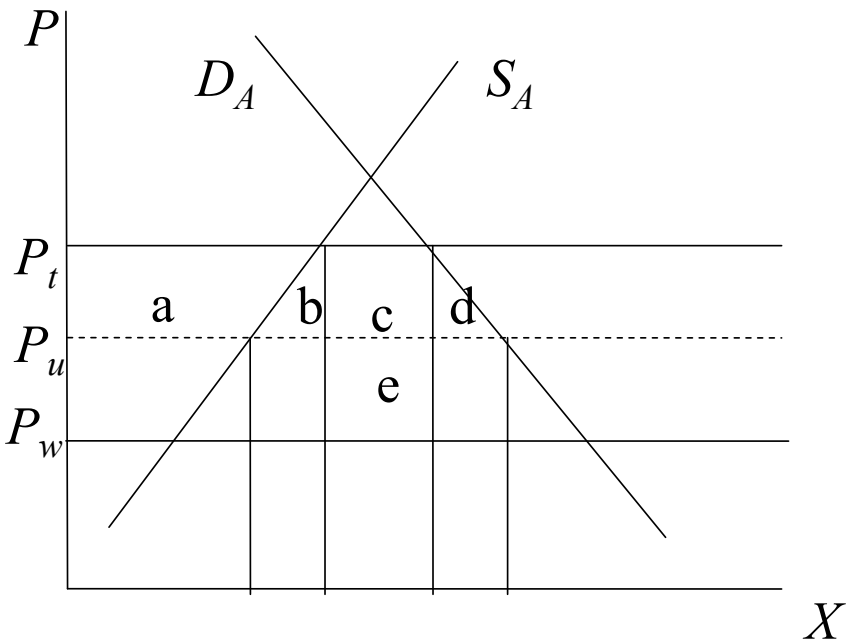


Welfare change:

Trade creation **+b**:
imports from B are cheaper than national production

2. Customs Union: Trade Creation and Diversion

Effects on importing Country A

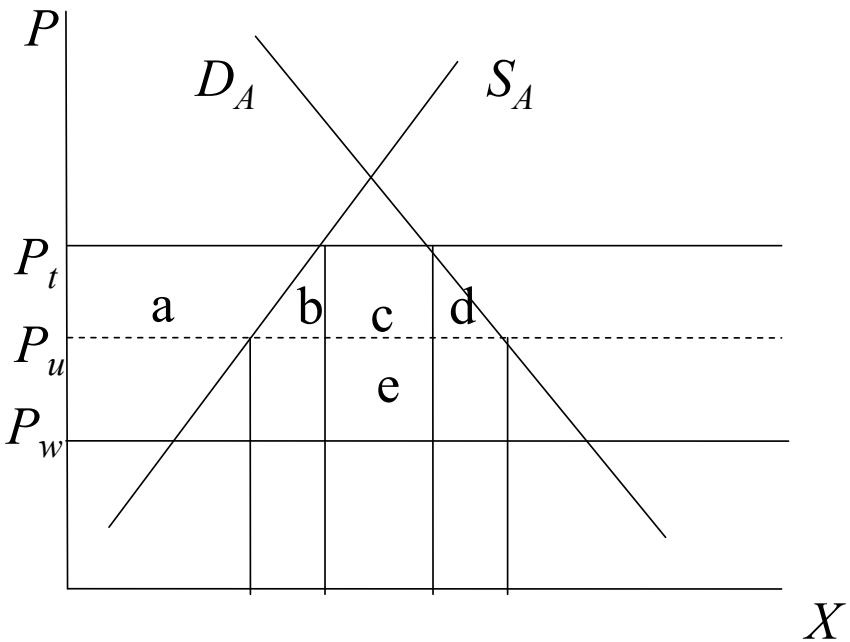


Welfare change:

Trade creation **+b**:
imports from B are cheaper than national production
Trade creation **+d**:
increased consumption

2. Customs Union: Trade Creation and Diversion

Effects on importing Country A



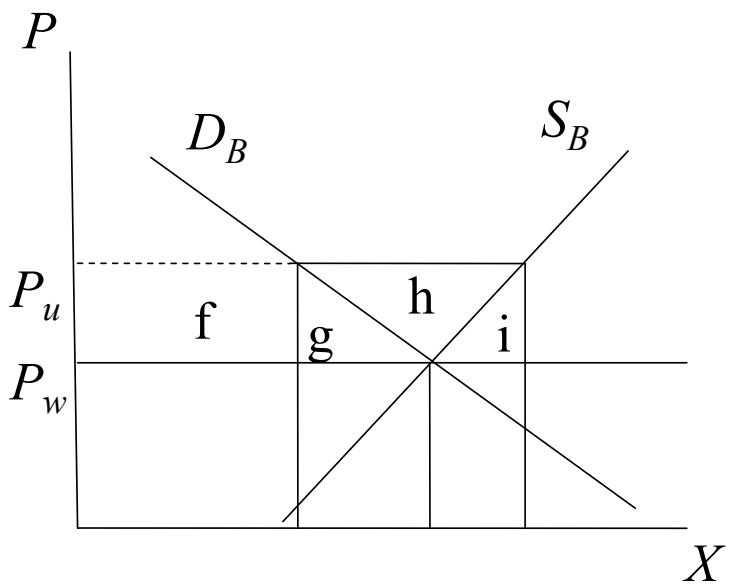
Welfare change:

Trade creation **+b**:
imports from B are cheaper than national production
Trade creation **+d**:
increased consumption

Trade diversion **-e**:
imports from B are more expensive than from ROW

2. Customs Union: Trade Creation and Diversion

Effects on exporting Country B

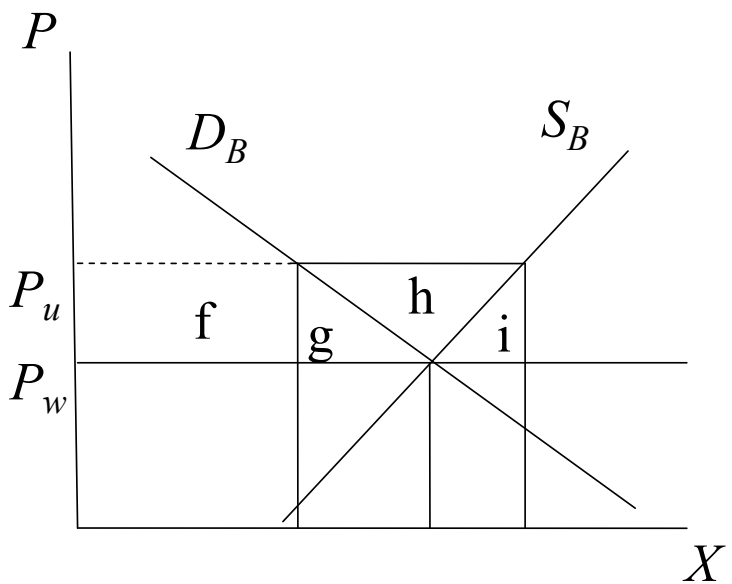


Tariff removal in A enables B to export there at a price above P_W.

Price increases to P_U, production increase, consumption decreases, exports increase

2. Customs Union: Trade Creation and Diversion

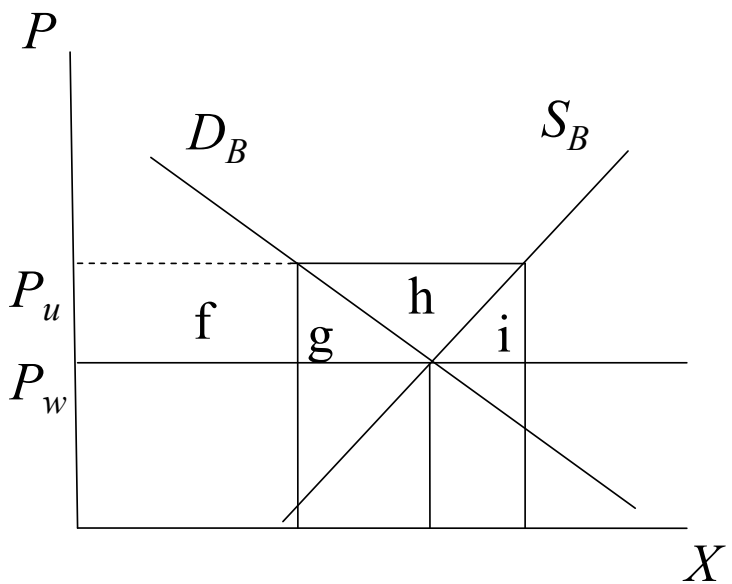
Effects on exporting Country B



Consumers loose surplus **f+g**, producers gain **f+g+h**

2. Customs Union: Trade Creation and Diversion

Effects on exporting Country B



Consumers loose surplus **f+g**, producers gain **f+g+h**

Welfare change: trade creation **h**

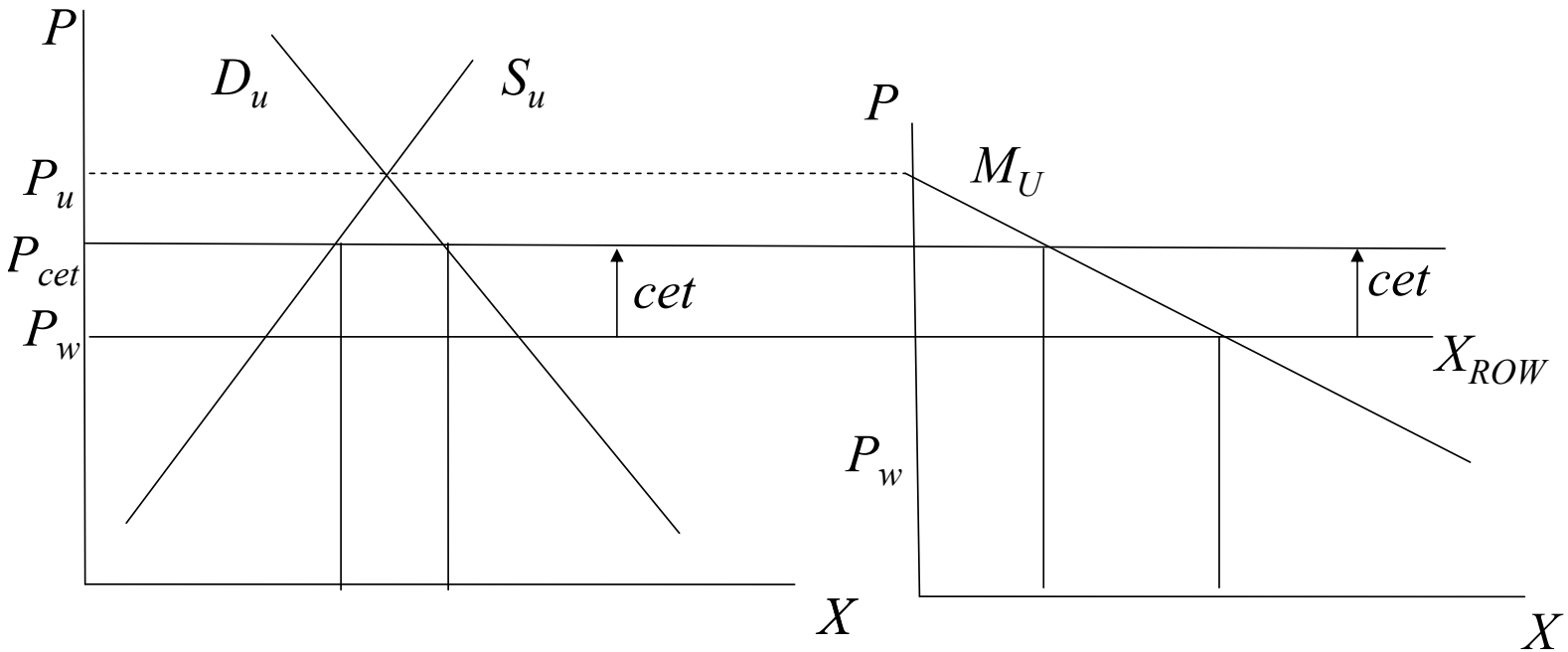
3. Terms of Trade in a Customs Union

Terms of Trade (ToT): relative prices of a country's export to import. An improvement in a nation's terms of trade means that it has to pay less in terms of exports for the imports it receives.

A small economy has no impact on world market prices, ToT are given. But a large economy has market power; its trade policy may influence relative prices.

3. Terms of Trade in a Customs Union

Suppose A and B don't set *cet* prohibitively high:
Imports will enter the CU at P_W, domestic consumers pay the tariff.



3. Terms of Trade in a Customs Union

Now suppose A and B are small individually, but not jointly. Their joint trade policy will then have an impact on P_W

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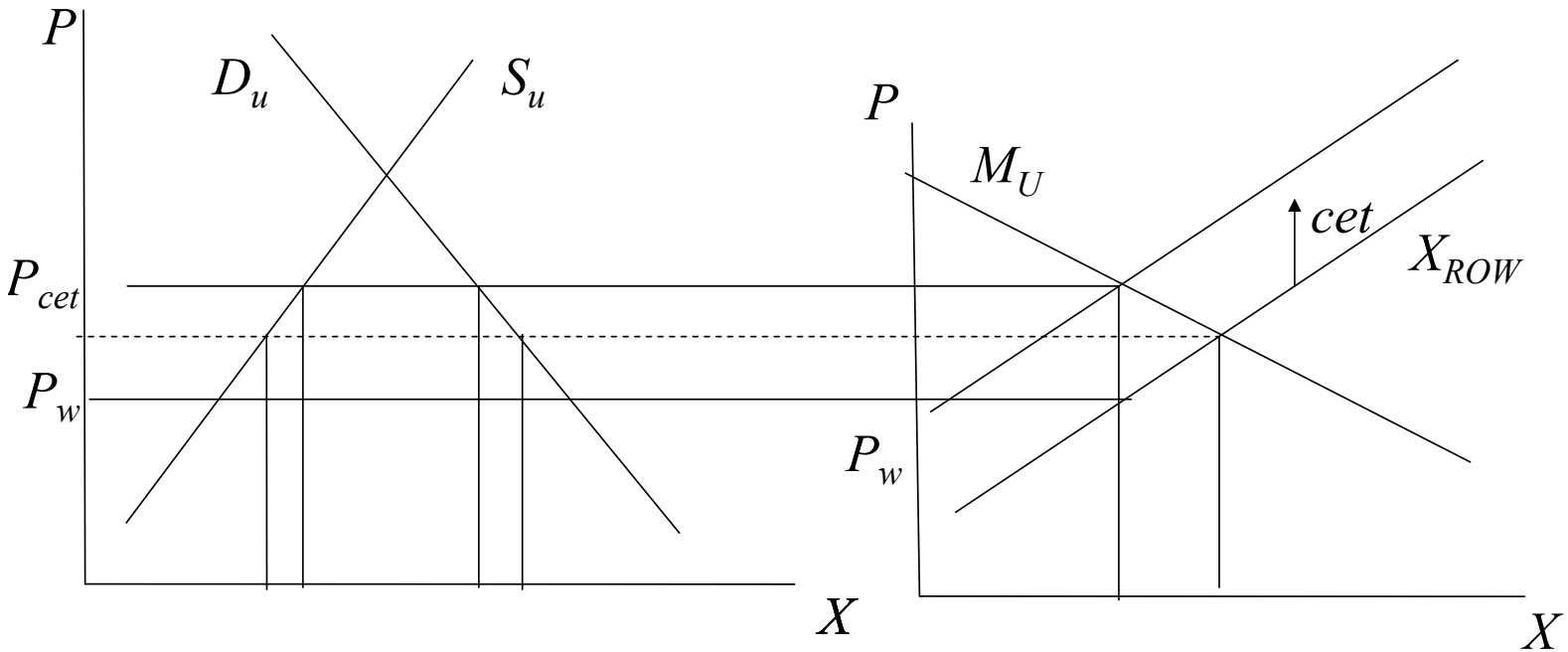
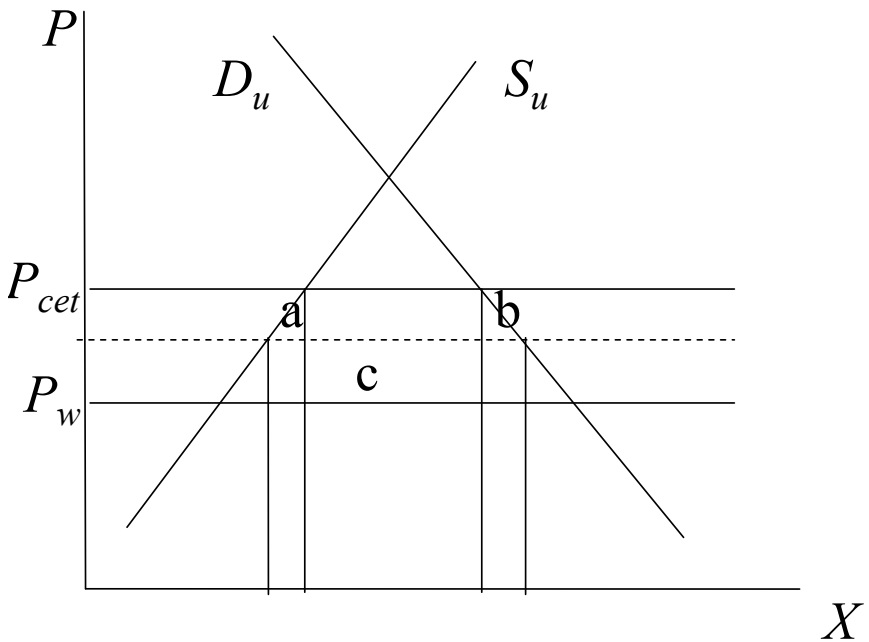


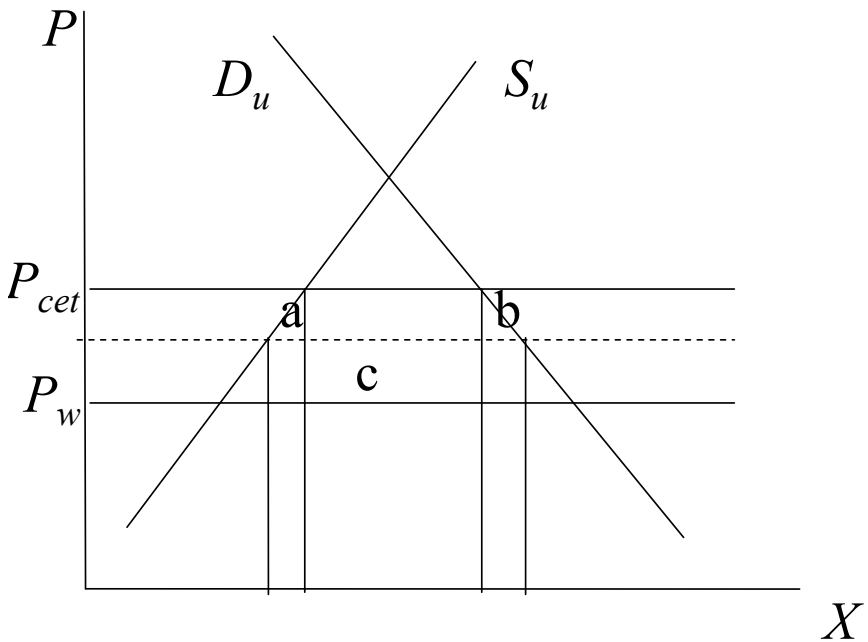
Demand reduction from CU leads to a reduction in P_W so the price in the Union rises by *less* than the tariff

3. Terms of Trade in a Customs Union



Tariff reduces imports (compared to free trade) reduces welfare by **a+b** (compare slide 44)

3. Terms of Trade in a Customs Union



Tariff reduces imports (compared to free trade) reduces welfare by **a+b** (compare slide 44)

and improves Terms of Trade: Imports become relatively cheaper
increases welfare by **c**

Part of the tariff now paid for by ROW!

4. Economies of Scale in a Customs Union

Economies of scale: average costs decrease at a larger scale of production

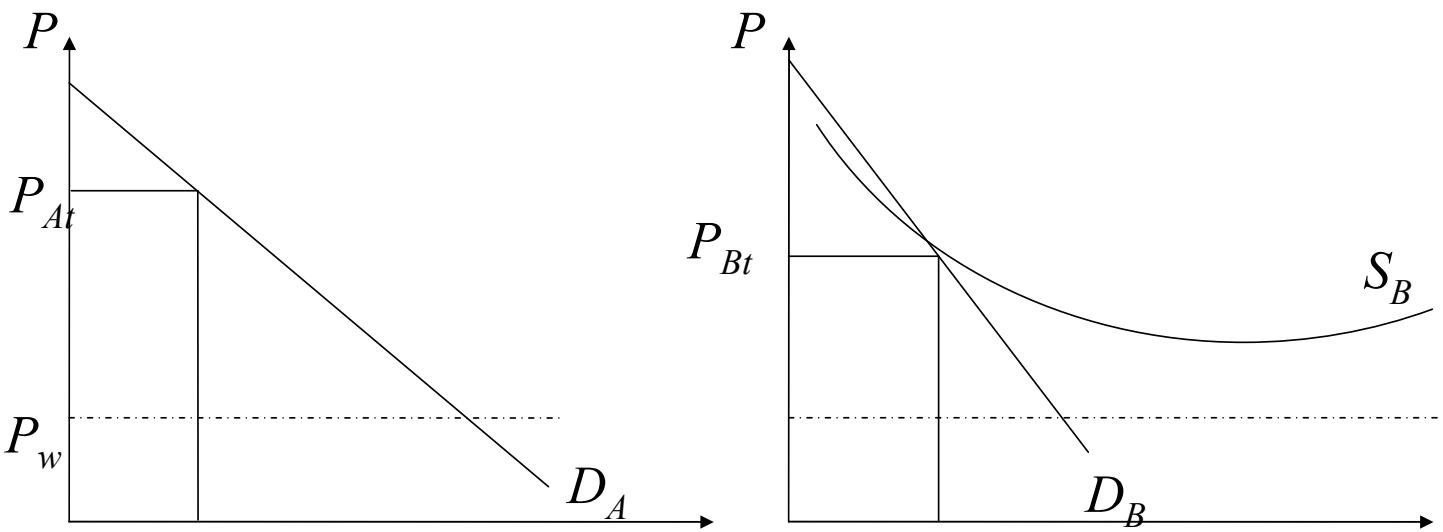
- Internal: because of the own expansion of the firm
- External: because of the expansion of the industry in which it operates

Economies-of-scale related welfare effect after a CU is set = the outcome of the cheapening of an existing source of supply

4. Economies of Scale in a Customs Union

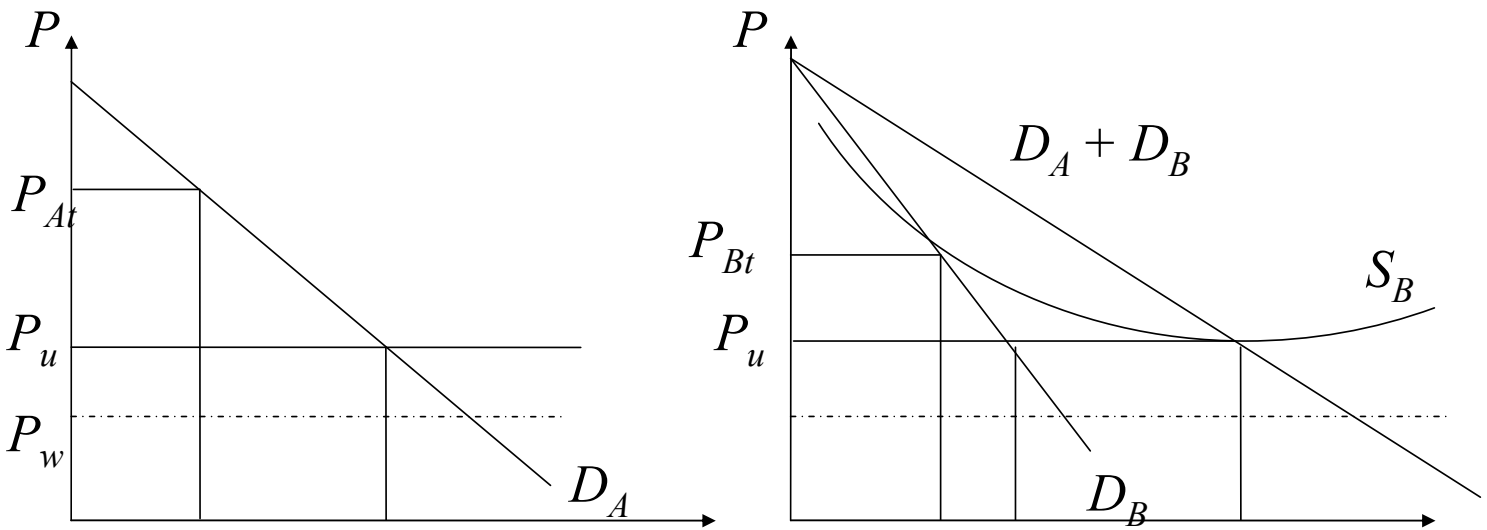
A imports good X from world market with tariff; no domestic production.

B produces good X with economies to scale
Supply curve: average cost pricing rule (at marginal cost: losses!)
Domestic equilibrium price P_B protected by a tariff



4. Economies of Scale in a Customs Union

A and B form a CU; P_U equalizes total demand and supply (assume $P_U < P_W + cet$ so there are no imports from ROW)
$P_U < P_B$ because a larger market size allows exploiting E.O.S.



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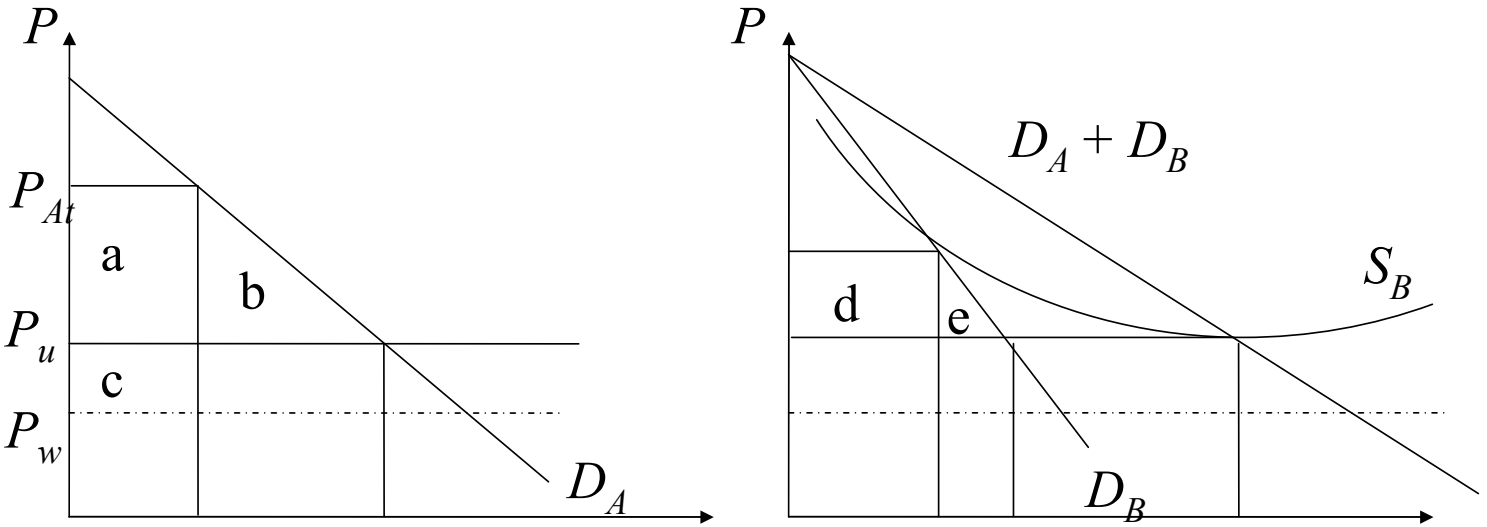


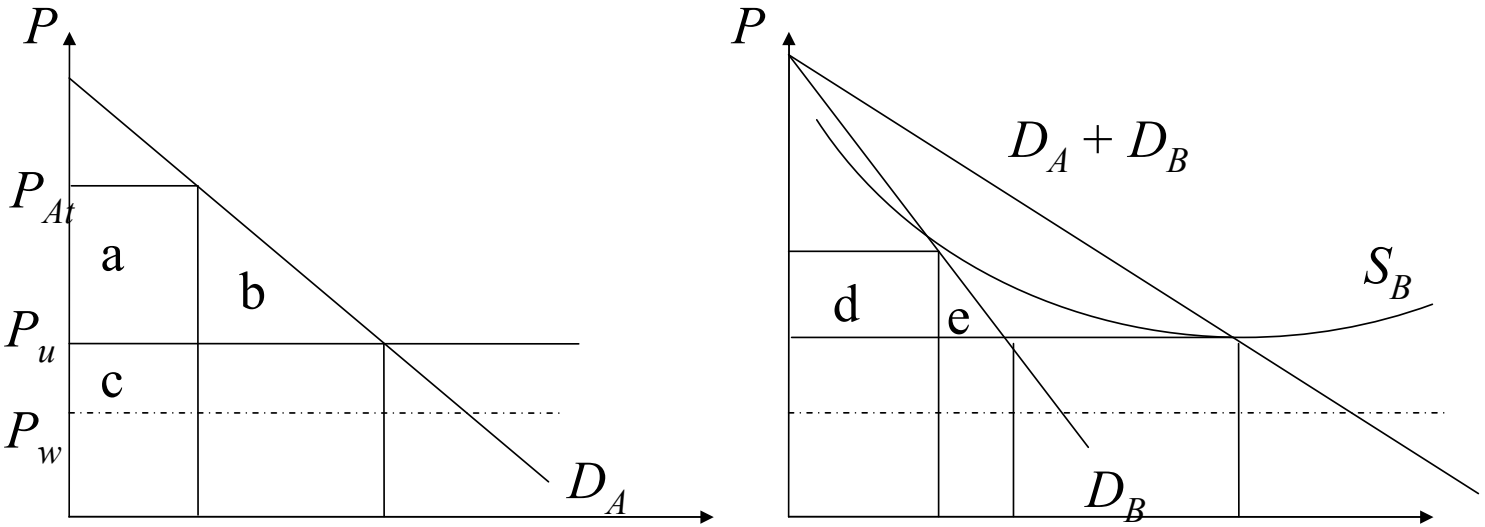
Welfare effects of a CU with Economies of Scale:

Country A

Consumers gain **a+b**
Government looses **a+c**

Trade Creation Effect **b**
Trade Diversion Effect **-c**

4. Economies of Scale in a Customs Union



Welfare effects of a CU with Economies of Scale:

Country A

Consumers gain **a+b**
Government looses **a+c**

Trade Creation Effect **b**
Trade Diversion Effect **-c**

Country B

Consumers gain d+e
Producers still make zero profits

Cost Reduction Effect **+d+e**

5. Free Trade Areas

Free Trade Area:

- no trade barriers among members
- individual national barriers with ROW
- rules of origin to prevent trade deflection (imports from an outside country entering the FTA through a low-tariff member country, which re-exports them duty-free to high-tariff member countries)

5. Free Trade Areas

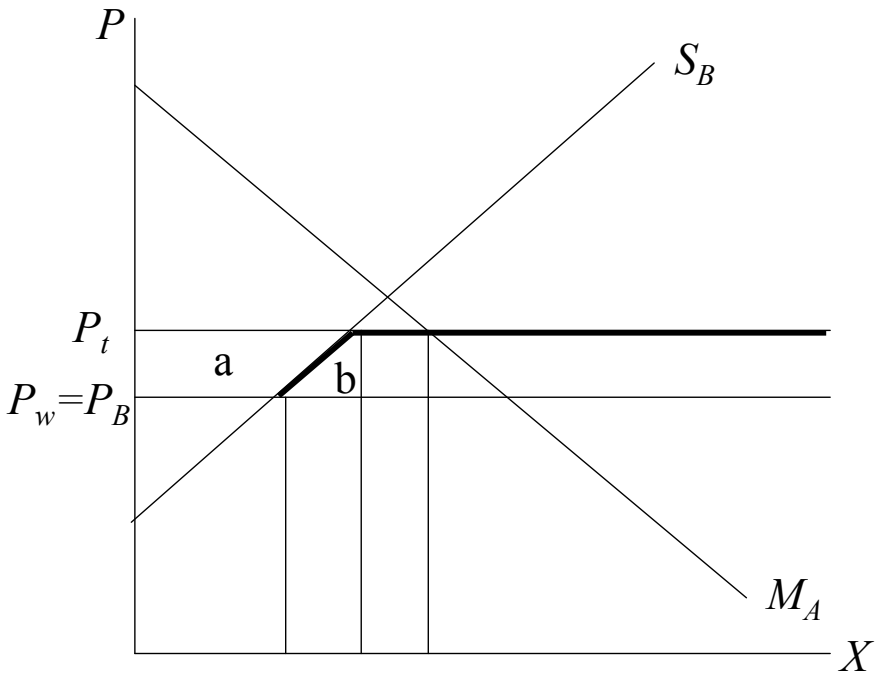
A imposes a tariff on imports from ROW;
removes tariff on imports from B after creation of the FTA

B imposes no tariff, autarchy price $P_B = P_W$ (for simplicity)

- Producers can sell domestically or to ROW at $P_B = P_W$
- ... or sell to A once the FTA is formed
- Consumers can buy domestically at P_B
- ... or from ROW at P_W if domestic producers sell to A,
  surplus unchanged if $P_B = P_W$

5. Free Trade Areas

Case 1: A's Import demand at price P_t exceeds B's supply



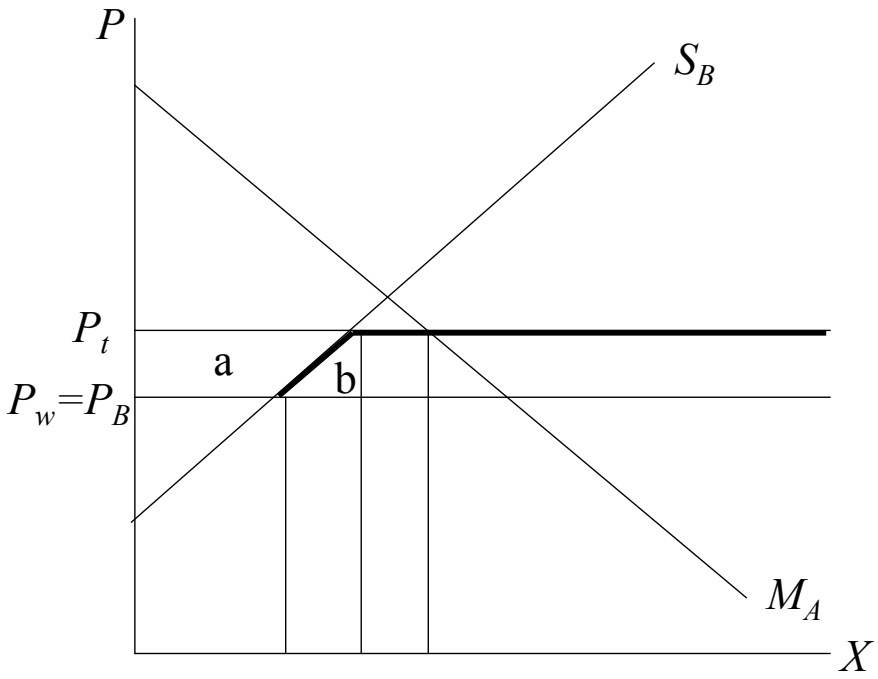
B increases production from $S_B(P_W)$ to $S_B(P_t)$ and sells everything to A

Producer surplus increases by **a**

Consumer surplus is unchanged

5. Free Trade Areas

Case 1: A's Import demand at price P_t exceeds B's supply

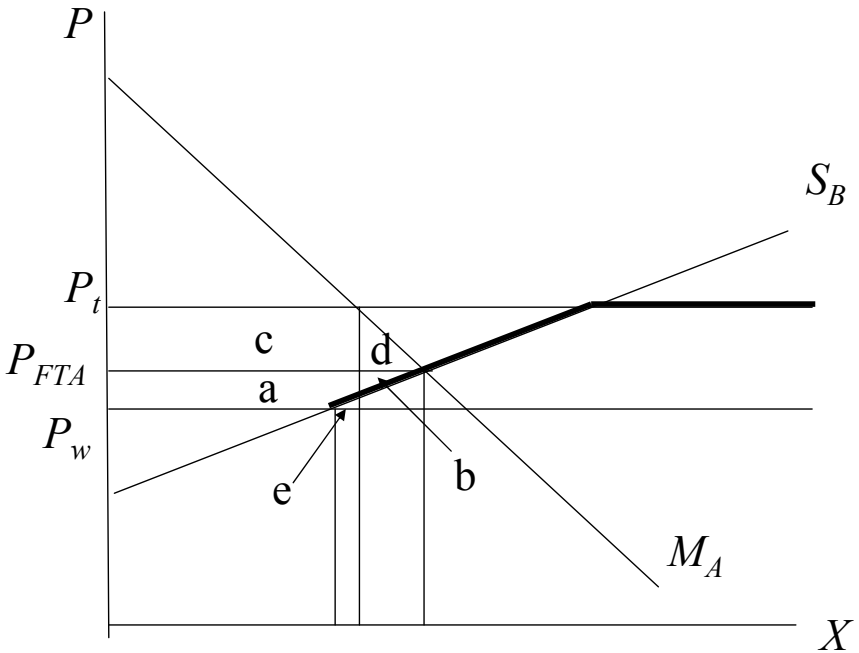


A's import quantity is unchanged: no trade creation but looses tariff income for imports from B
Trade Diversion: **-(a+b)**

Total Welfare change: **-b** substitution of ROW production for more expensive B-production

5. Free Trade Areas

Case 2: A's Import demand at price P_t falls short of B's supply



Market clearing price $P_{FTA} < P_t$

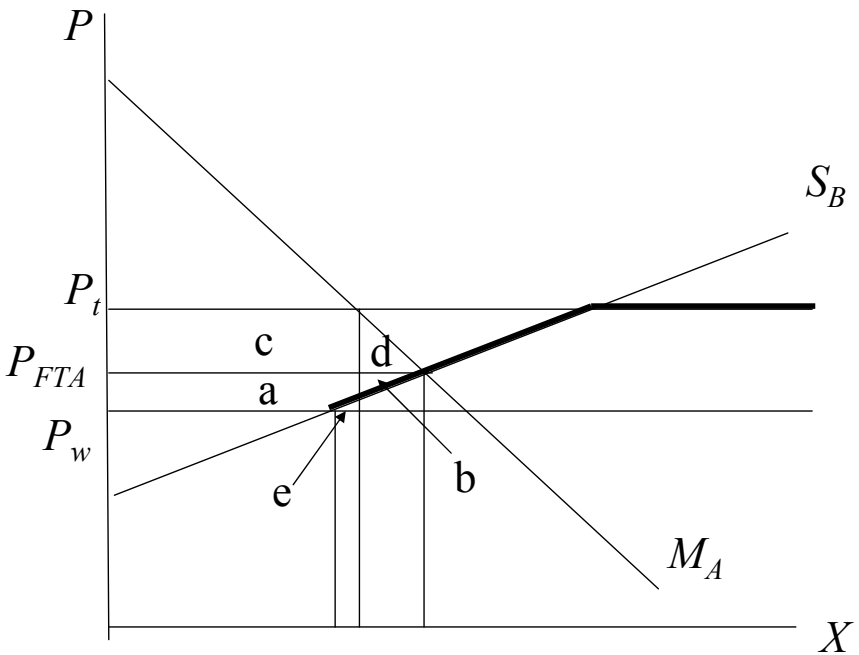
B increases production from $S_B(P_W)$ to $S_B(P_{FTA})$ and sells everything to A

Producer surplus increases by **a+b**

Consumer surplus is unchanged

5. Free Trade Areas

Case 2: A's Import demand at price P_t falls short of B's supply



A's import quantity increases:
Trade Creation: **+d**
but looses all tariff income
Trade Diversion: **-(a+c+e)**

Total Welfare change:
+b+d-(c+e)

5. Free Trade Areas

In both cases, when the price of X differs between the member countries of the FTA, country B is an exporter of domestically produced X and an importer of X produced and exported by ROW.

Under certain cost and tariff conditions, the welfare effect of an FTA may exceed that of a comparable customs union. But, in general, since both CUs and FTAs operate in a second-best world it is incorrect to postulate that the one is always better than the other.

6. Common Markets

Common Market:

- Free trade of goods and services
- Free mobility of factors of production (labor, capital)

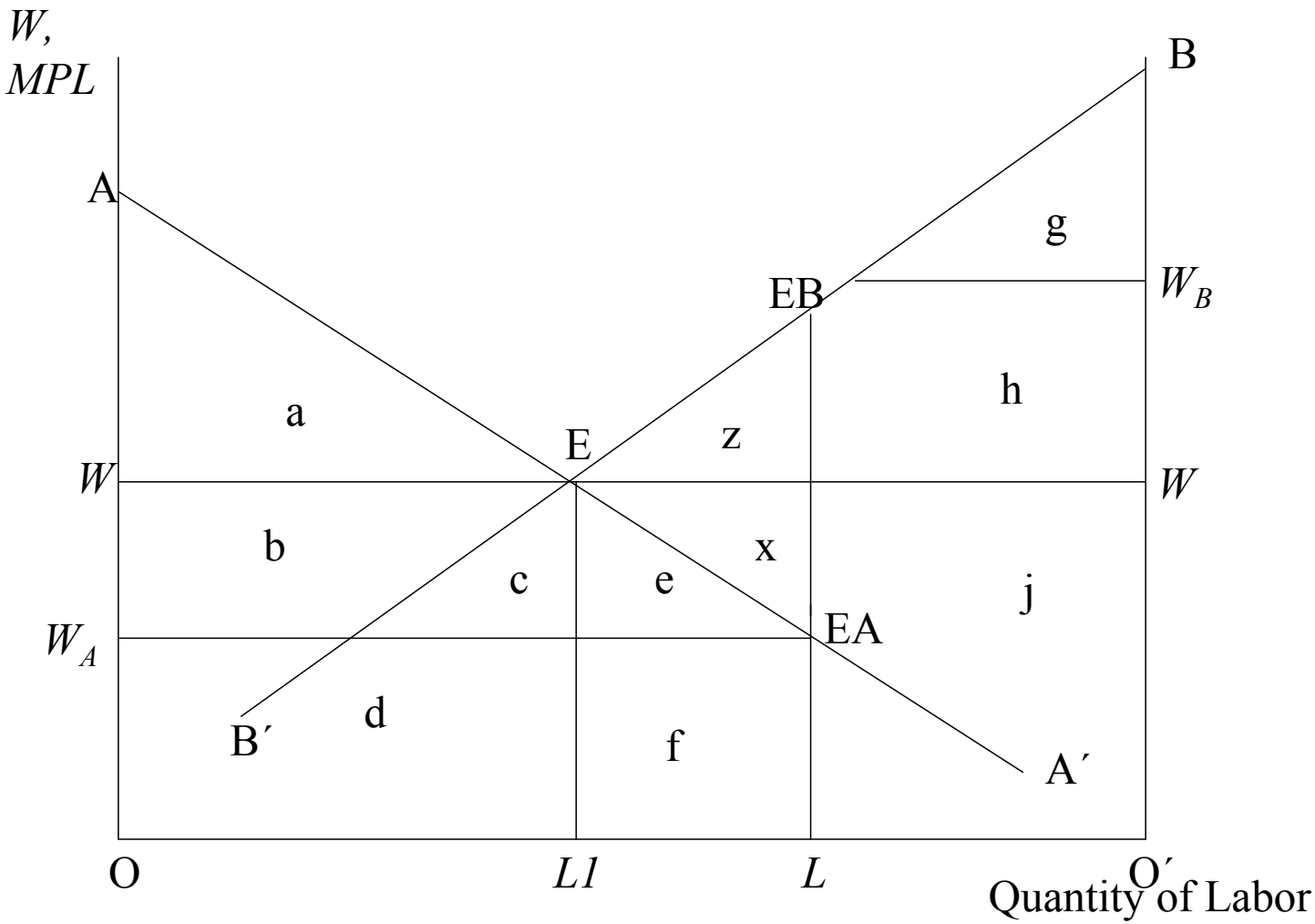
$\Rightarrow$ Equalization of commodity prices, labor wages and capital rents (in real world, factor prices only tend to converge, no complete equalization)

- Improved allocation of factors of production $\Rightarrow$ rise in welfare
- Capital mobility and technology transfer has consequences: on the static effects of economic integration + on the growth prospects of the members

a) Effects of Labor Mobility

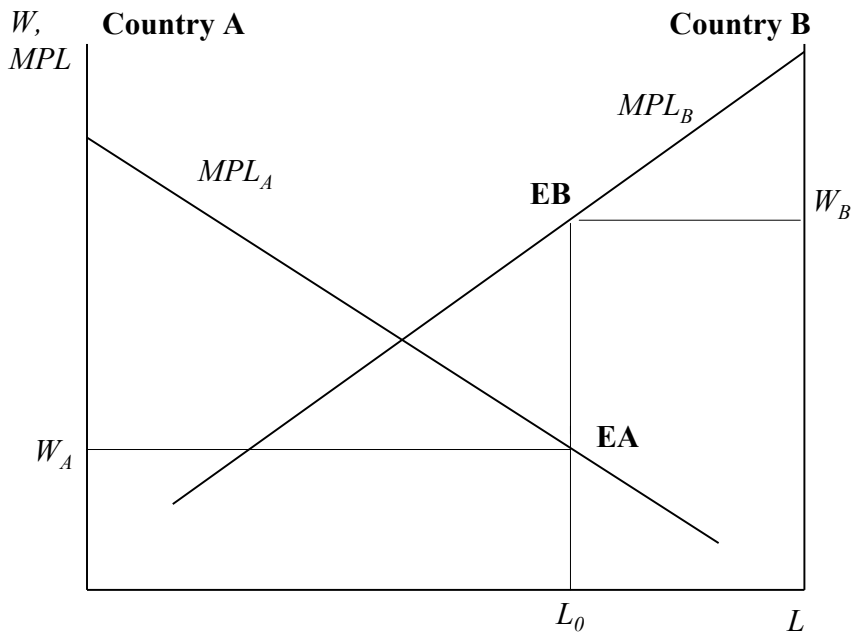
- Countries A and B produce the same good Y (only one good: no trade)
- using identical technology and factors capital K and labor L
- total supply of K and L is fixed
- initially: no international factor mobility: supply is fixed in each country and may differ between countries

a) Effects of Labor Mobility



a) Effects of Labor Mobility

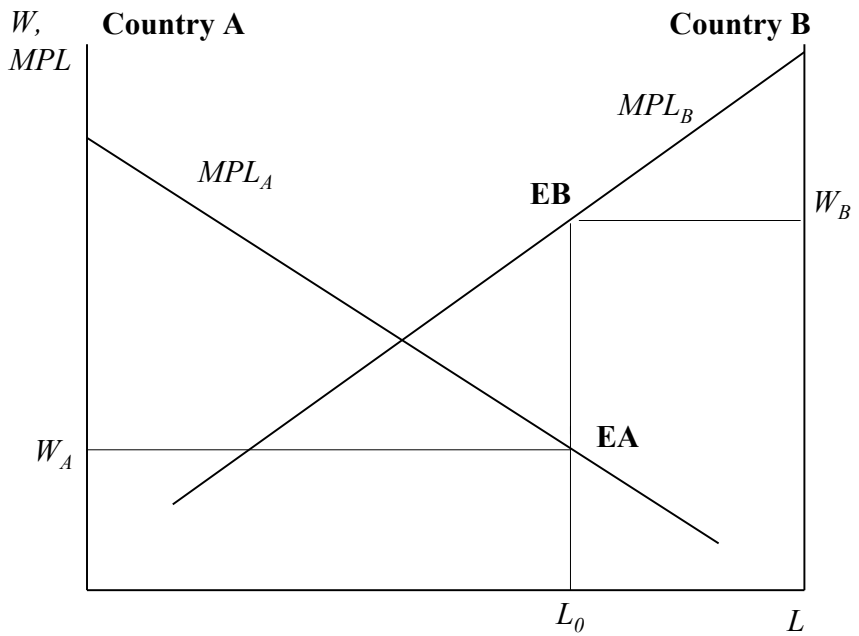
Graph combines a diagram for country A (from left to right) and one for country B (from right to left) facing that of A.



Total labor supply: L (length of horizontal axis)

Country A's labor supply: L_0
Country B's labor supply: $L - L_0$

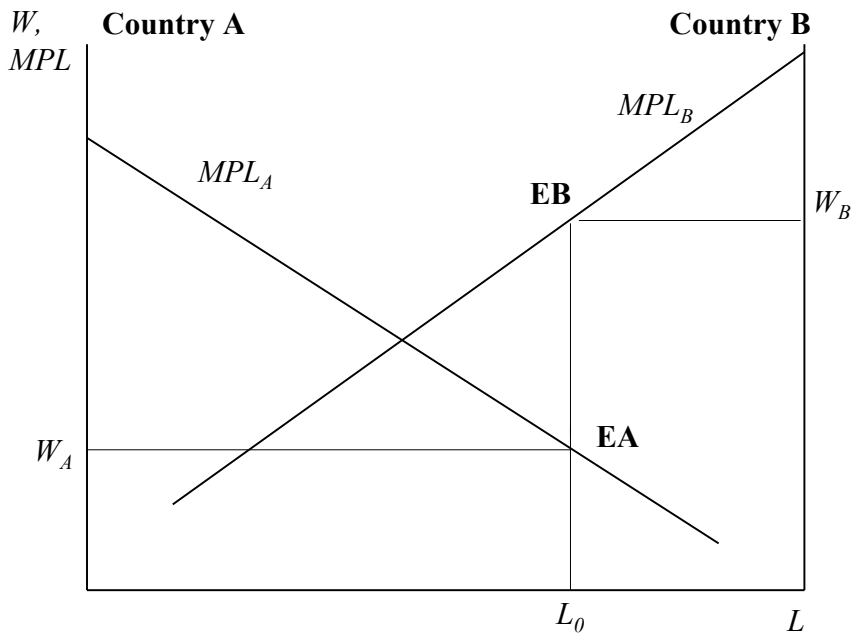
a) Effects of Labor Mobility



Vertical axes: marginal product of labor *MPL* and wage rate *W*

Labor demand in country A: MPL_A falls as employment rises (and capital fixed) because marginal product declines
same for country B: labor demand MPL_B

a) Effects of Labor Mobility

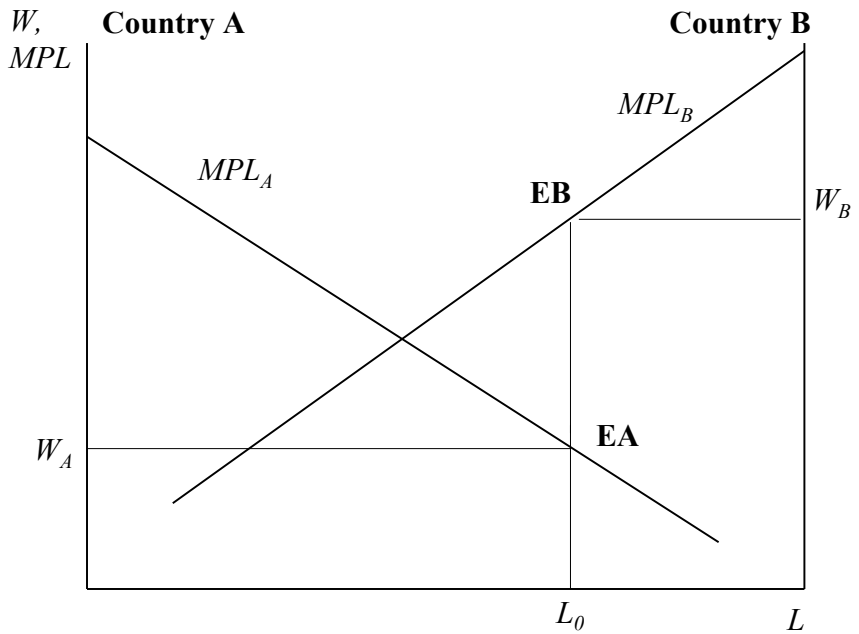


Equilibrium with full factor employment
(labor demand = labor supply)
$MPL_A(L_0) = W_A$ and
$MPL_B(L - L_0) = W_B$
(points $\mathbf{E}_A$ for A and $\mathbf{E}_B$ for B)

Country B has less labor
$\rightarrow$ has a higher equilibrium wage rate $W_B > W_A$

a) Effects of Labor Mobility

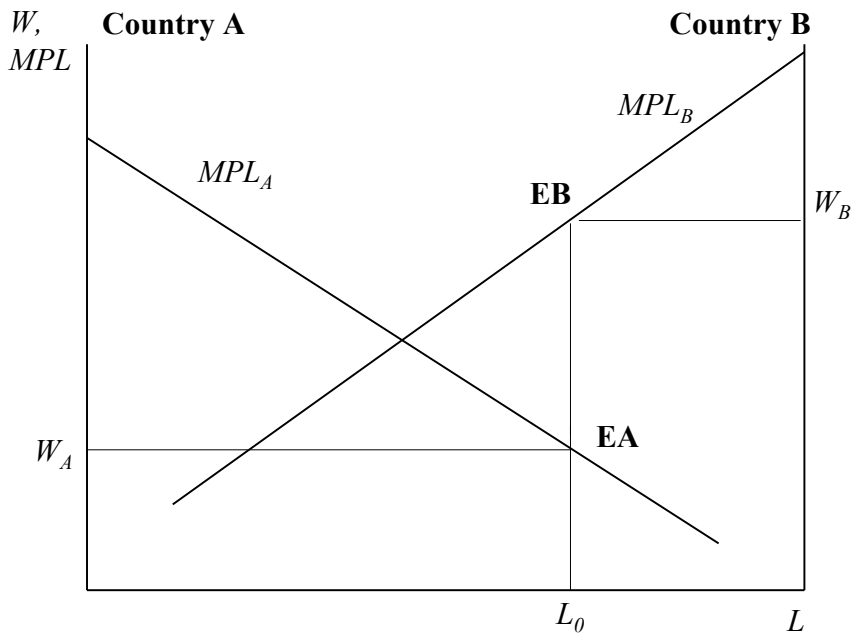
With perfect competition (implicit in the construction of the diagram):



- Each country's national income (total output of Y) equals the area under the *MPL*-curve up to the point of equilibrium:
  area **abcdef** in A
  area **ghj** in B

a) Effects of Labor Mobility

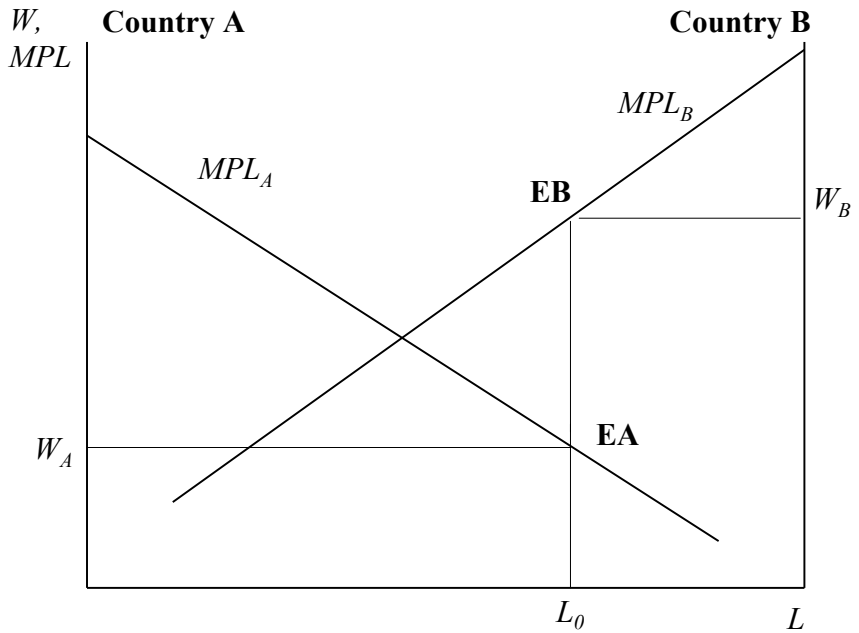
With perfect competition (implicit in the construction of the diagram):



- National income of each country is distributed between the two factors of production, labor receiving the wage bill, (wage · workers), and capital gets the rest;
- Labor's total income in A is **bcd**, and capital's income is **a**;
- Labor's income in B is **hj**, and capital's income is **g**.

a) Effects of Labor Mobility

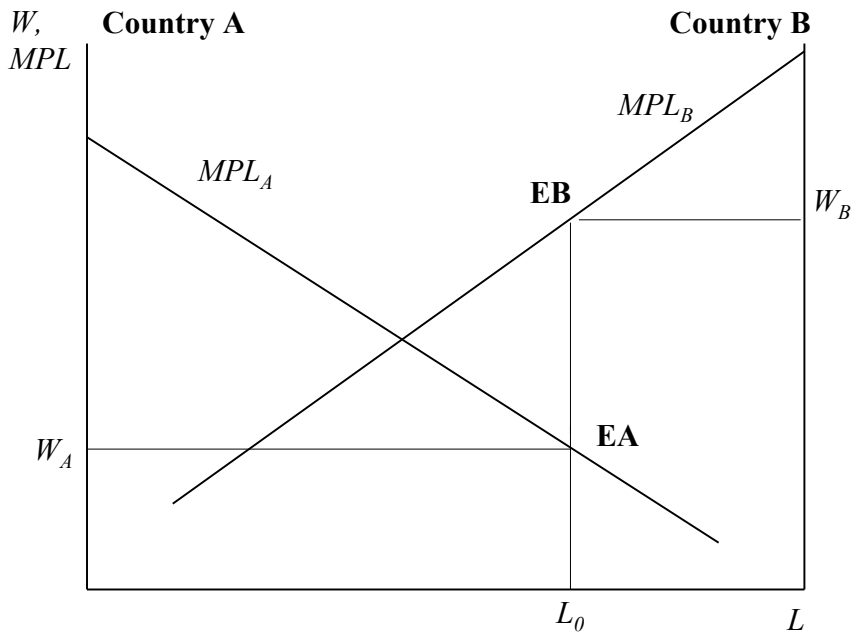
Now suppose that the countries form a Common Market: Workers can move freely.



- Since $W_B > W_A$, workers form A will move to B to work for a higher wage rate.
- This reduces A's labor force and increase B's,

a) Effects of Labor Mobility

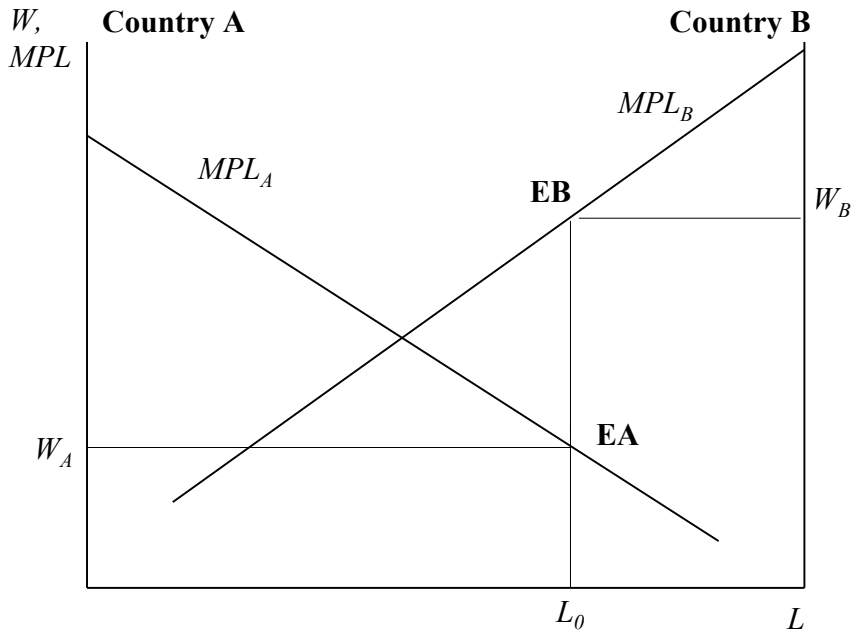
Now suppose that the countries form a Common Market: Workers can move freely.



- Labor movement raises A's wage rate and reduces B's.
- until the wage rate in the two countries is equalized, $W_B = W_A$,
- and therefore their marginal product of labor in the two countries is the same, $MPL_A = MPL_B$. This occurs at point **E** with a common wage rate W and labor employment L_1 in A and $L - L_1$ in B.

a) Effects of Labor Mobility

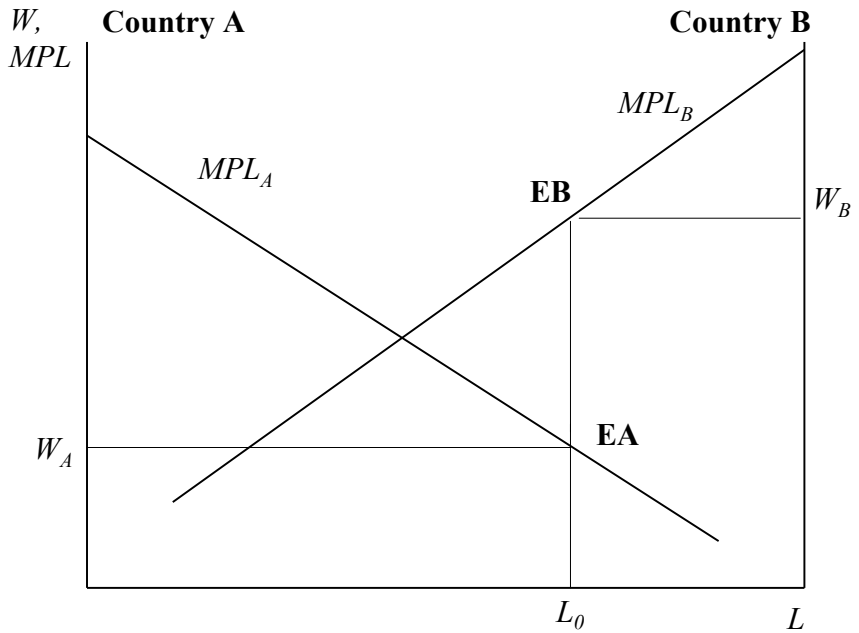
Reallocating the labor force between the two countries has the following effects:



- A's income falls to abcd and B´s rise to ghjefzx,
- There is a net increase in the Common Market's income equal to area **zx**, appropriated by B which also gets area **ef** from A

a) Effects of Labor Mobility

Reallocating the labor force between the two countries has the following effects:



- Income of workers in A rises and, therefore, its capital income falls
- The income of labor *originally* employed in B falls, capital's income in B rises because more labor is employed at a lower wage rate than before

a) Effects of Labor Mobility

Free international mobility of labor is beneficial for the Common Market as a unit, but some member countries and income groups gain, others lose (as with commodity trade).

This is one of the reasons some argue in favor of redistribution by, for example, a central budget.

b) Effects of Capital Mobility and Technology Transfer

If we assume that capital is internationally mobile, the analysis is similar to that of labor mobility.

Difference between the two cases: a capital flow from one country to another does not necessarily mean that the ownership of capital has changed!
This is the case of capital moving between countries as foreign investment. Are, partly at least, repatriated as incomes to the owners of capital.
Therefore, as the income earned on capital invested abroad is part of the national income, the benefits of capital reallocation in an integrated financial market may be shared between the partners in the common market.

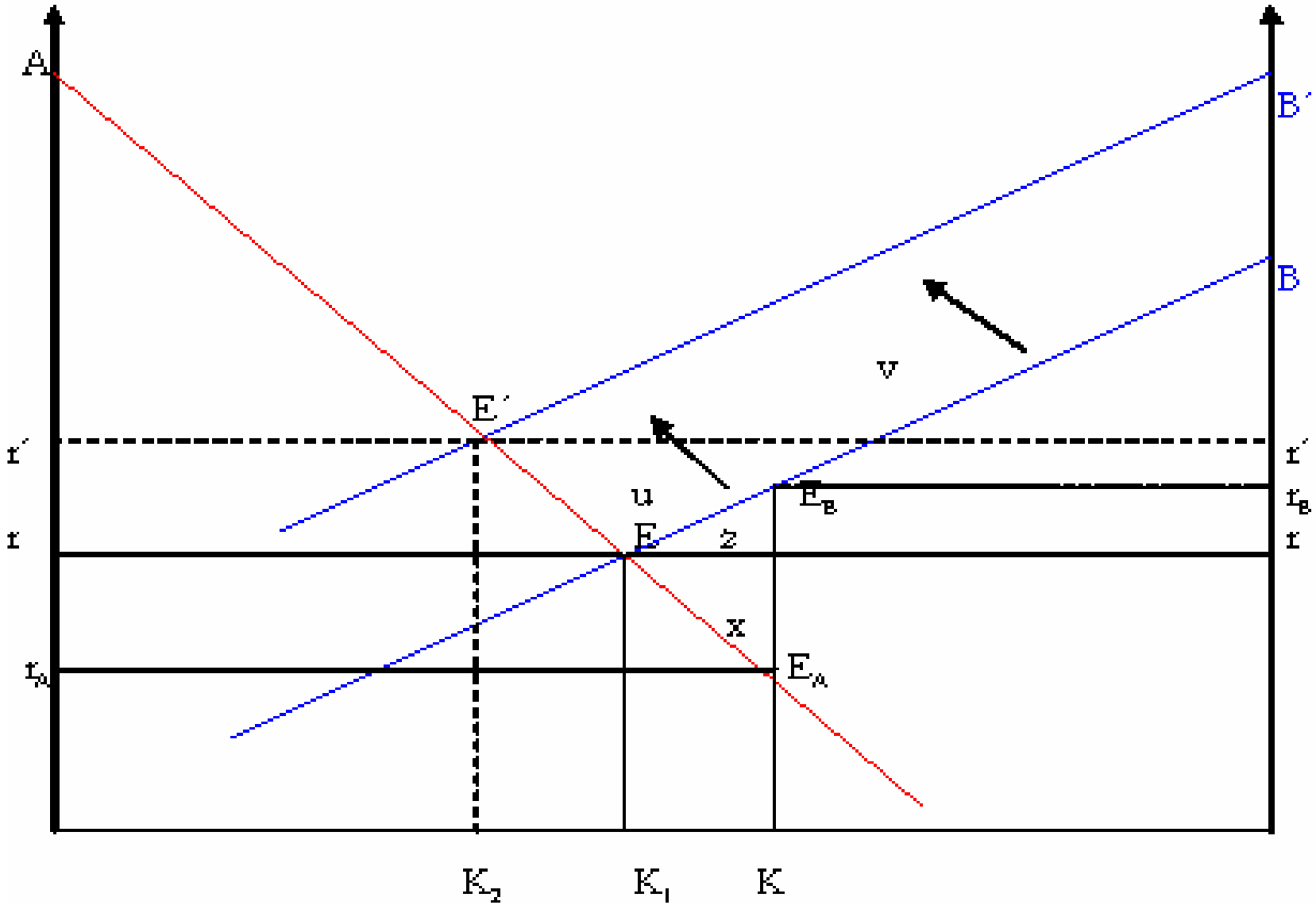
Similar considerations might apply if migrant workers repatriate their savings.

b) Effects of Capital Mobility and Technology Transfer

The factor mobility effects shown above follow under the assumption that the two countries, A and B, share the same technology.

In the case of capital it is possible, however, that the capital exporting country has a **superior technology** to that of the capital importing country. Then capital can become the carrier of advanced technology leading to further positive welfare effects.

b) Effects of Capital Mobility and Technology Transfer



b) Effects of Capital Mobility and Technology Transfer

The vertical axes measure the rate of return to capital, r, and the horizontal axis the capital stock, K, in countries A and B.

Capital market liberalization causes capital capital to flow from A to B, equalizing the rate of return to capital in the common market and increasing income by the area **zx**.

The transfer of technology from A to B also *shifts upward the marginal productivity curve* of B, resulting in reallocation of the capital stock by a further flow of capital from A to B, resulting in a common rate of return r', and a further increase in income, the area **uv**. The transfer to technology in a common market would have consequences not only on the static effects of economic integration but also on the growth prospects of the participating countries.