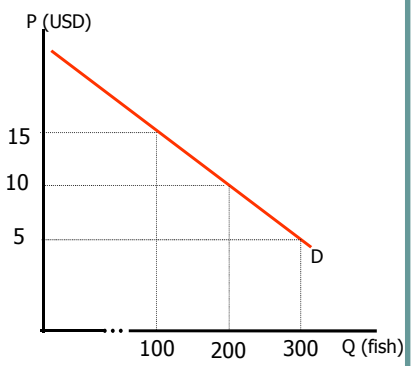
International Trade and Markets
Chapter 2: Trade Theories

DR. NGUYEN MINH DUC

Domestic demand

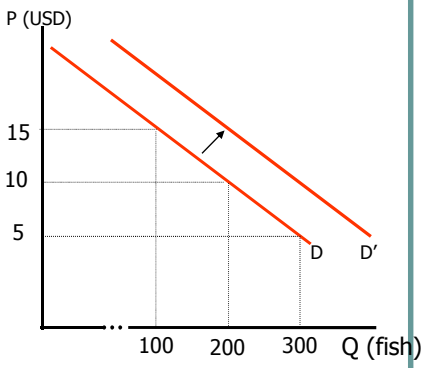
- Why demand curve has a downward shape?
  - Substitute effect
  - Income effect
- What are demand shifters?



Domestic demand

Domestic demand

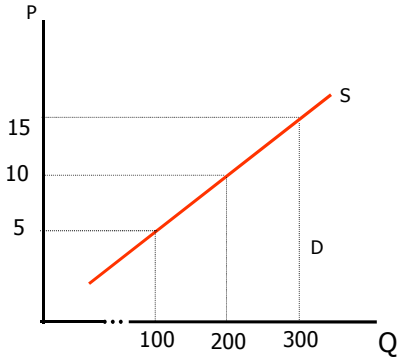
- Shifters of demand curve?
  - Preference of consumers
  - Potential consumers (population)
  - Price expectation
  - Consumers' income
  - Related products



Domestic demand

Domestic supply

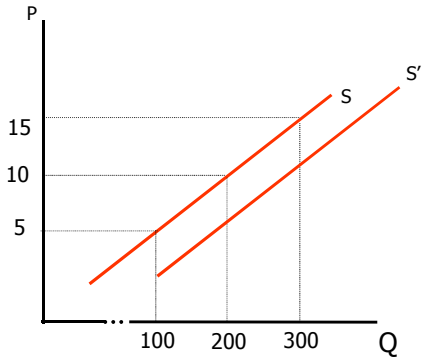
- Why supply curve has an upward shape?
  - Diminishing marginal productivity of inputs
  - Willingness to sell
- What are supply shifters?



Domestic supply

Domestic supply

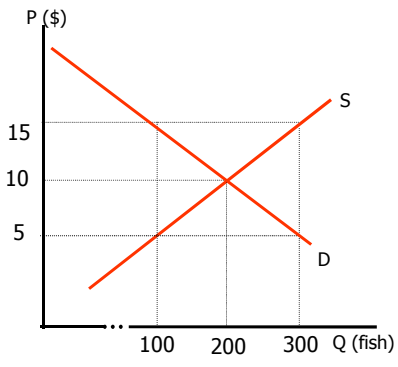
- Supply shifters
  - Technology development
  - Producer number
  - Price expectation of producers
  - Input cost



Domestic supply

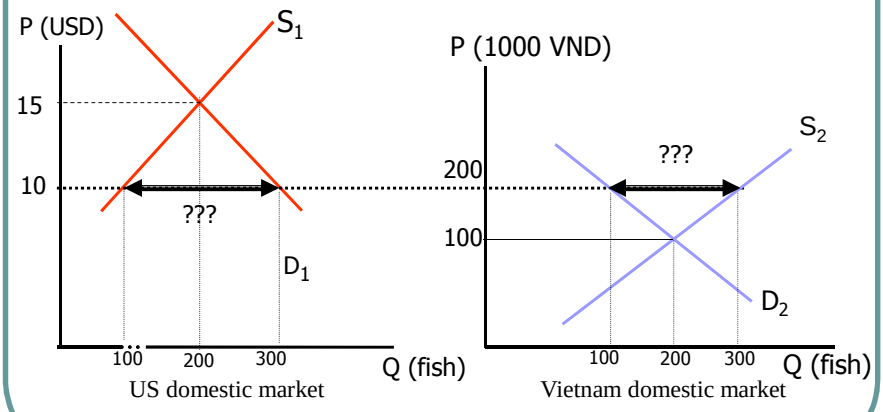
Domestic market equilibrium

- When a market gets equilibrium?
  - At the price of $15, what happens?
  - At the price of $5, what happens?



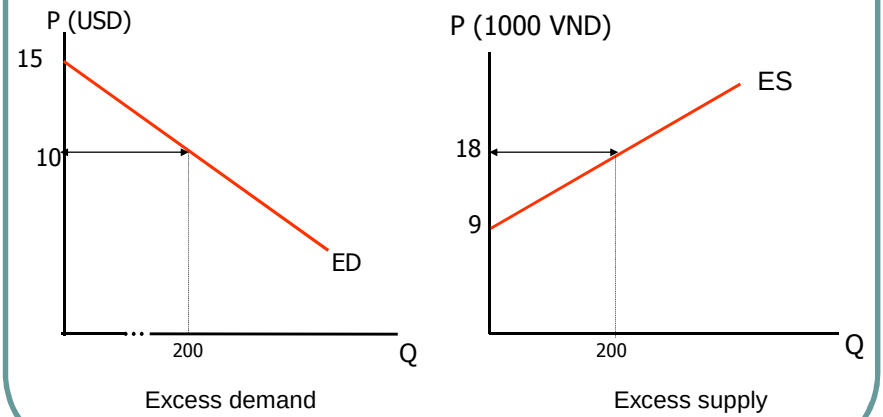
Market equilibrium

International market
two-country trade model

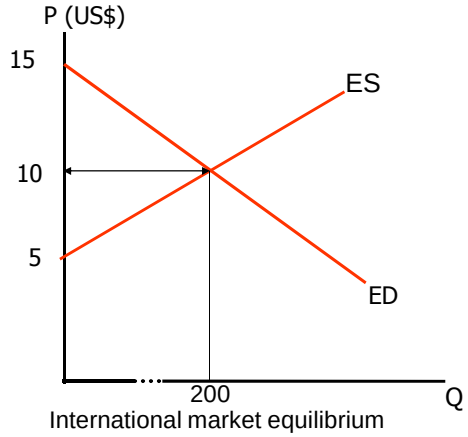


Exchange rate: 20000 VND/USD

Excess demand and excess supply



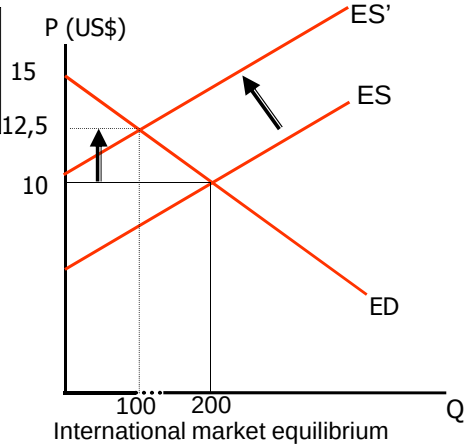
International market equilibrium



International market equilibrium

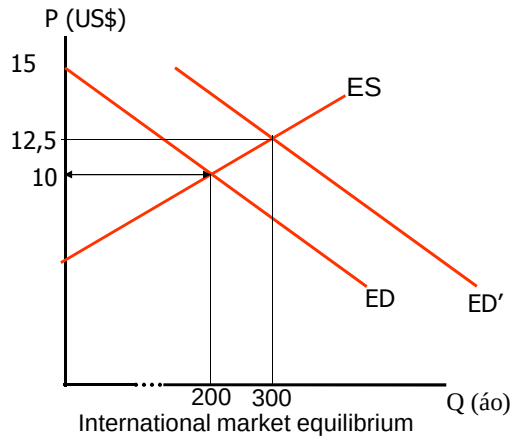
Shift in excess supply

When exchange rate VND/USD decline



International market equilibrium

Shift in excess demand



Balance of Trade

- Balance of trade

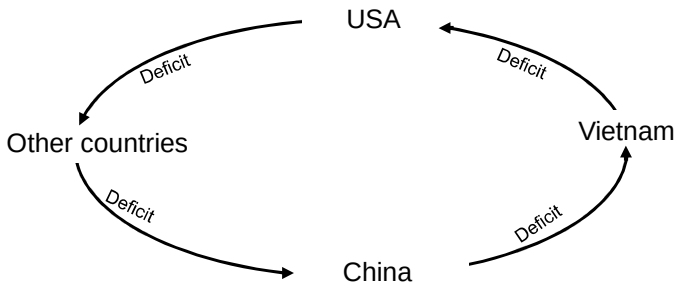
  BOT = X – M

  = P_x*Q_x – P_m*Q_m
- Trade deficit: X < M
  - Ex: Vietnam and China
- Trade surplus: X > M
  - Ex: China and the USA

Openness

- Imply an integration level of a nation into international trade
- Openness = (X+M)/GDP

Multilateral trade balance



Discussion

Trade deficit is good or bad?

Adam Smith's theory

- View *supply side* of the market
- Concept of cost was found on ***labor theory of value***
  - *Labor is the only factor of production and homogeneous (of quality)*
  - *The cost (price) of a good depends exclusively on the amount of labor required to produce it*

Adam Smith's theory

- A nation should specialize in goods it has absolute advantages and trade with other countries to get less cost products.
- invisible hand of global competition enforces specialization in the country if there is no governmental intervention

Absolute advantages

- Suppose 2 nations A and B has the same of 100 working days, divided equally for 2 products: cements and fish
  - A can produce: 100 ton fish, 200 ton cements
  - B can produce: 80 ton fish, 400 ton cements
  - Total 180 ton fish, 600 ton cements

	Fish	Xi măng
A	100	400
B	80	200
Without trade	180	600
A (specialize)	200	
B (specialize)		800
And trade	200	800

Comparative advantages

- Now, suppose 2 nations A and B has the same of 100 working days, divided equally for 2 products: cements and fish
  - A can produce: 100 ton fish, 400 ton cements
  - B can produce: 80 ton fish, 200 ton cements
  - Total 180 ton fish, 600 ton cements

	Fish	ratio	Cement	ratio
A	100	1.25	400	2.0
B	80	0.8	200	0.5
Without trade	180		600	
A (specialize)			800	
B (specialize)	160			
And trade	160		800	

Ricardo's theory

- Gain from trade appears even a country does not have an absolute advantage
- Comparative advantages

Comparative advantages

- Price of fish relative to cements is

  $P_{fs}/P_{cm} = Q_{cm}/Q_{fs} = 800/160 = 5$

- To offset a shortage of 20 ton fish, both 2 A and B would use 20*5=100 ton cements to trade with a third country. Therefore, both A&B has a surplus of 100 ton cements. The surplus is gain from trade based on comparative advantage.

Ricardo's theory

- Comparative advantages and gains from specialization and trade are basic and long life principles of social sciences, including economics
- Ricardo had offered first models on specialization and trade, provide his follows a background to establish a new economic sector, international economics

Ricardo and constant cost theory

- Production (Supply side) is a focus of trade theories
- *Labor is the basic and most important factor, used with a constant amount to produce one unit of products*
- Production factor is hold constant leading to constant (production) cost, or constant opportunity cost.
- Perfect competition
- Profit maximization for producers and utility/satisfaction maximization for consumers

Ricardo and constant cost theory

- Simple model 2x2 with
  - 2 goods
  - Produced by 2 countries
  - Both countries gain from specialization and trade
- Each nation has a fixed endowment of labor which is homogenous in quality and freely moved between countries
- the level of technology is fixed for both countries.
- Free trade (no tariff, no barriers)
- No transaction cost
- No transportation cost

.

Constant Cost Theory

Propose in a day VN needs 2 labors to produce one units of Fish and needs 3 labors to produce 3 units of Cement

Labor cost for production is constant and may be noted

$a_{LS} = 2$ and $a_{LM} = 3$

where

- a_{LS} is labor amount to produce one unit of Fish (FS)
- a_{LM} is labor amount to produce one unit of Cement (CM)

Constant Cost Theory

- Labor amount to produce S units of FS is 2S
- Labor amount to produce M units of CM is 3M.
- If labor endowment of VN (L) is 120 and the countries just produce 2 goods FS and CM

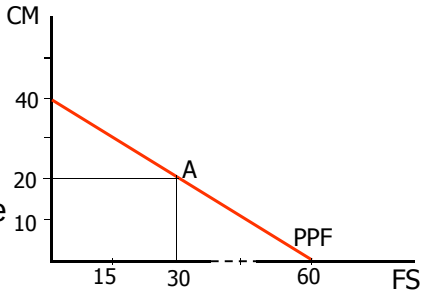
$$L = 2S + 3M = 120$$

- Assumed fixed labor endowment, more production of one goods would lead to less production of the other good.

Production Possibility Frontier

Combinations of two goods in the same conditions with the same technology, using the same level of resource

For constant cost, opportunity cost is the same for the combinations (go along on the PPF)



Production Possibility Frontier

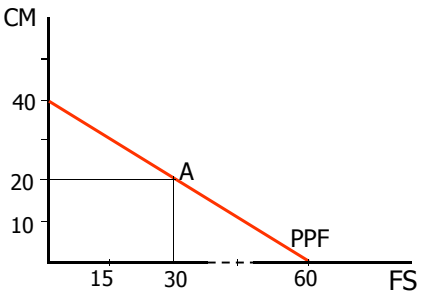
Production Possibility Frontier

L= 120, a_{LS}=2, a_{LM}=3.

120/3 = 40 CM
120/2 = 60 FS

Two end points are (CM, FS) = (40,0) hay (0, 60).

At point A, production are 20 CM and 30 FS.

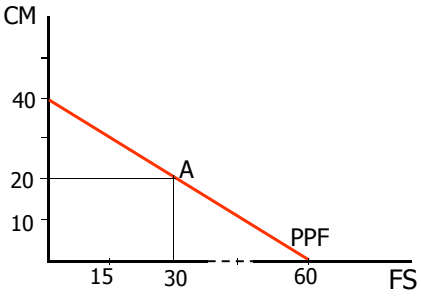


Production Possibility Frontier

Production Possibility Frontier

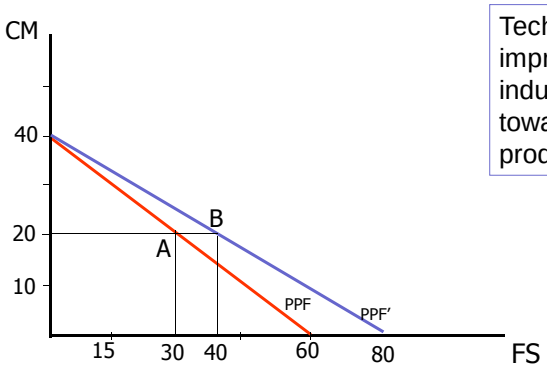
Relative price of FS
= absolute value of the PPF slope
= 2/3.

As 2 labor left CM sector, to produce 1 unit of FS, CM production reduces 2/3 units.
=> opportunity cost of FS is 2/3 CM
=> The opportunity cost will not change along the PPF



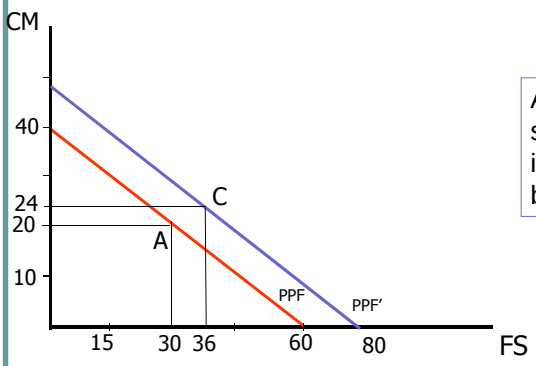
Production Possibility Frontier

Effect of productivity improvement on PPF



Technological improvement in one industry expands the PPF toward an increase in production of the industry.

Effect of population growth on PPF



An increase in population shift the PPF far away and increase production in both industries.

PPF of a foreign country

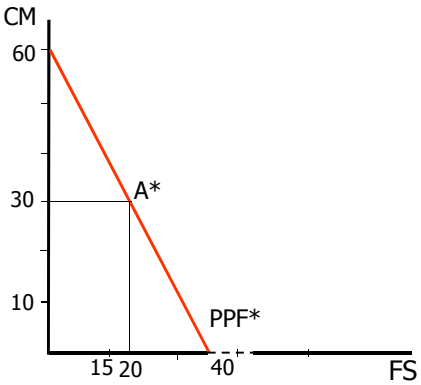
L*= 240, a^*_{LS}=6 and a^*_{LM}=4.

240/6 = 40 FS
240/4 = 60 CM

Two end points of PPF* are (CM, FS) = (60,0) and (0, 40).

At A*, production includes 30 CM and 20 FS.

Relative price of FS is
P_s/P_m = XM/TS = 3/2

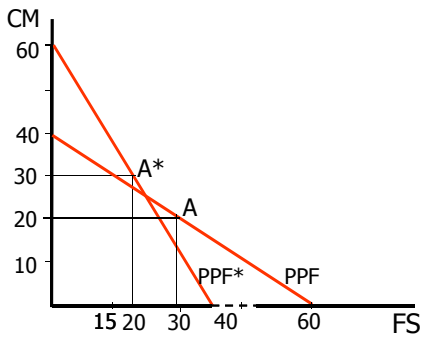


Consumption without trade

-No country may consume more than its production capacity

- production and consumption of domestic economy is at A and of foreign economy is at A*.

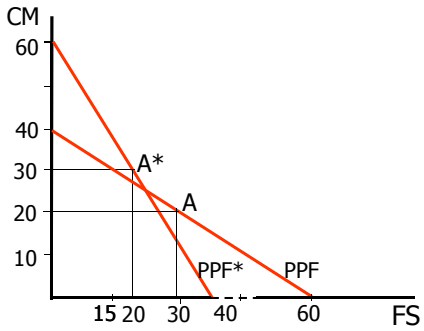
- Relative price of FS would be lower in domestic economy but higher in the foreign country



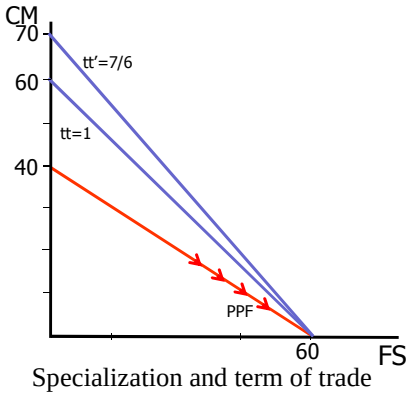
Relative price and specialization

- The difference in relative leads to a specialization for more efficient production in global economy

- Each countries will specialize in the product that has lower relative price than that in other country, i.e. specialization on comparative advantage or higher efficient product.



Terms of trade



Specialization and term of trade

Relative price of FS in domestic economy is 2/3, and in the foreign country is 3/2.

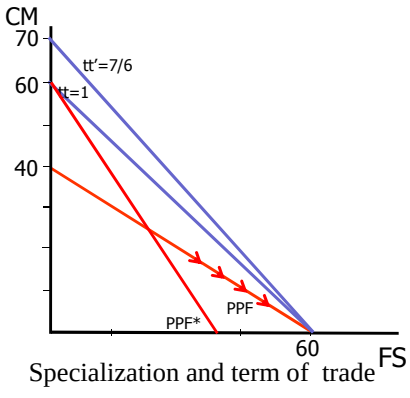
If intrenational price is 1:1 or term of trade is 1 (tt=1), we can trade 1 FS for 1 CM

At tt=7/6, we can trade 60 FS for 70 CM.

Term of trade (TOT) is the ratio between export price and import price of a country.

TOT = P_x/P_m = *M/X*

Terms of trade

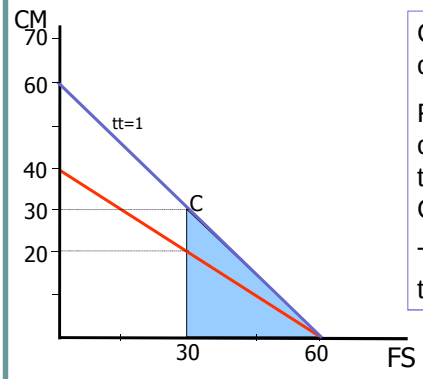


Specialization and term of trade

If domestic economy specializes in FS production and trade for CM at the price of 1/1 (higher than relative price of 2/3), it will gain.

The foreign economy also gains with tt=1 as the price lower than relative price P_{TS}/P_{XM} = 3/2 of FS

Trade Triangle



Consumption level goes along the tt curve.

For eg. Consumers may choose to consume at C (CM,FS) = (30,30). At that point, 30 FS would trade for 30 CM.

The triangle C3060 represents trade volume and tt also

Gains from trade

Which country has higher values in its export goods will gain more from trade

Level of the gain from trade also depends on international demand

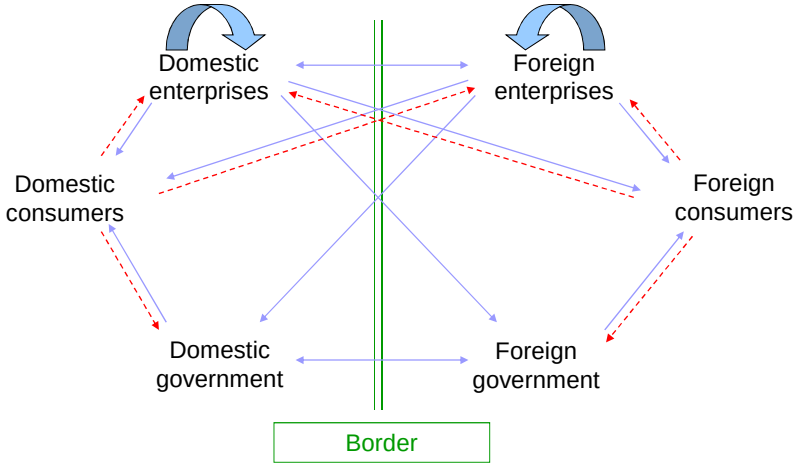
For eg., domestic customers valuate foreign CM higher than foreign customers valuate domestic FS, tt is higher for the foreign country as it has higher position in trade negotiation.

Discussion

If a bigger country trade with a smaller country, which has more benefit?

Discuss on economic activities across national borders.

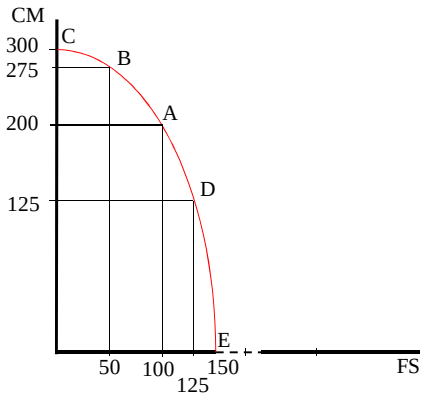
Economic activities in global context



PPF and increasing cost

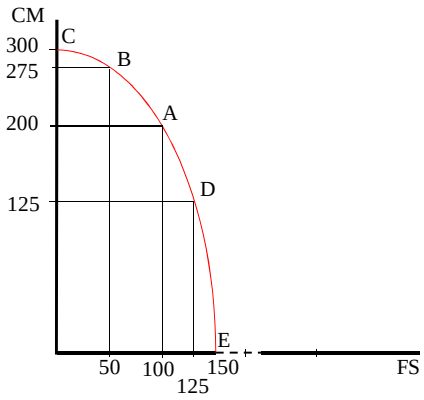
- Increasing opportunity costs of production results in a PPF bowed or concave to the origin.
- The opportunity cost of additional production of FS
  - Between points C and B is
    25/50 = 0.5
  - Between 2 points D and E is
    125/25 = 5

  => Opportunity cost to produce FS rises with the production level of FS



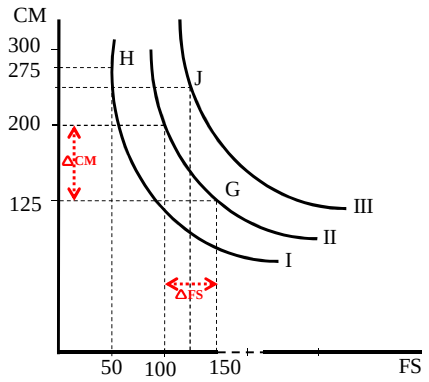
Marginal rate of transformation (MRT)

- PPF shows the potential of the economy to produce goods when there is full employment and efficient production
- The slope of the PPF is marginal rate of transformation (MRT)
- *Increasing cost of production and a concave PPF are due to diminishing marginal productivity of inputs*



Indifference curve and marginal rate of substitution

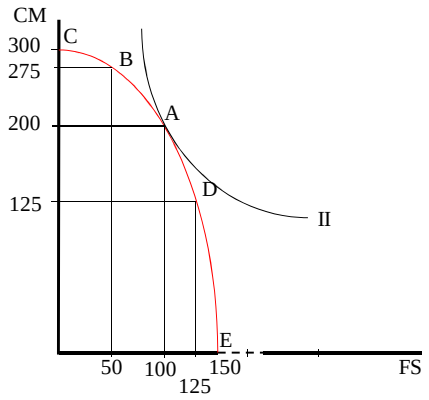
- Marginal rate of substitution (MRS) is the slope of an indifference curve
  = **△CM/△FS**
- MRS is the number of CM that consumers are willing to give up to get one more unit of FS



Market equilibrium

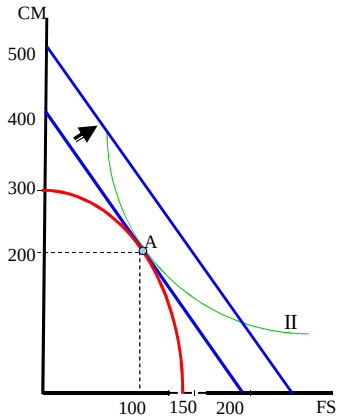
- At equilibrium *A*, marginal rate of substitution equals to marginal rate of transformation
  MRT = MRS

Why we call A market equilibrium???



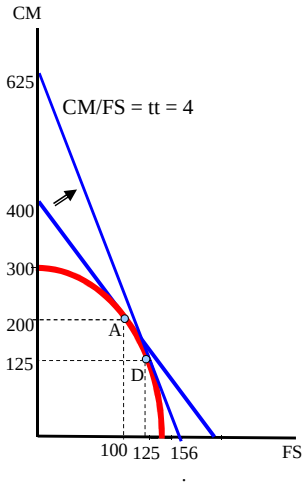
Relative Price and National Income

- Suppose domestic production and consumption in autarky is at point A.
- The line tangent to the PPF and indifference curve at A is relative price line
- National income is 400 CM or 200 FS.
- The parallel outward shift in the price line represents an increase in additional income at the same relative price CM/FS = 2.



Trade and specialization

- The terms of trade CM/FS=4 represents international price of FS, higher than domestic relative price CM/FS=2
- An open economy would specialize in FS production and move production point from A to D, produce more FS but less CM



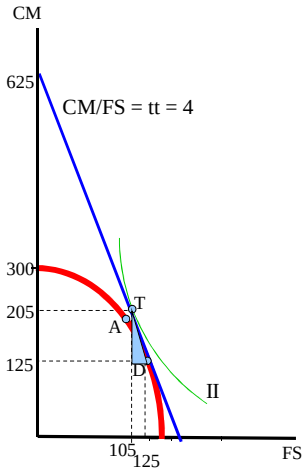
Production and consumption with trade

- If domestic economy specializes its production at point D and trade, its consumption lies on the terms of trade curve tt = 4

⇒ Export 20 FS to import 80 CM

⇒ Consume both products at point T more than that at point A

⇒ *Higher social gain and utility (satisfaction)*



Why relative price differentials?

Factor endowment theory (Heckscher-Ohlin)

- Comparative advantage is explained entirely by different national supply conditions, especially resource endowments
- Nations export products that use inputs which are relatively abundant (cheap) at home, and import products which need inputs which are relatively scarce (expensive) at home

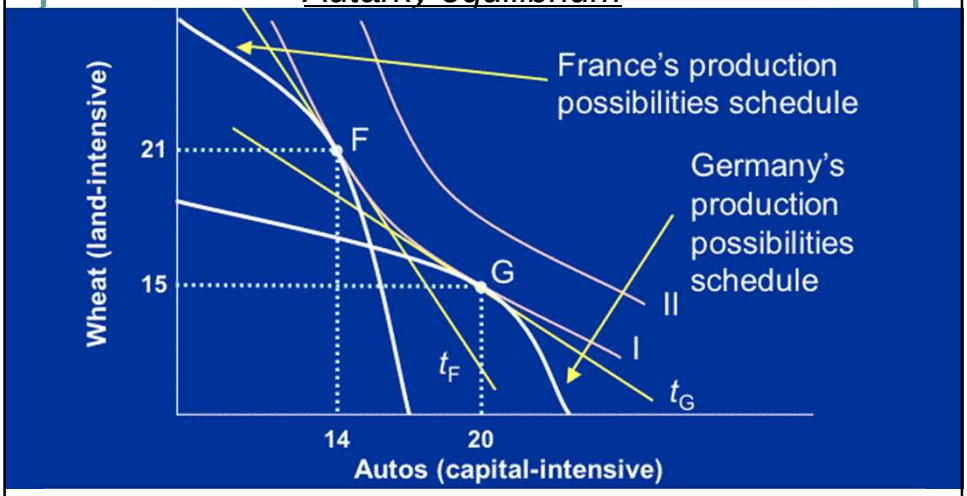
Why relative price differentials?

Factor endowment theory (Heckscher-Ohlin)

- Nations all have the same tastes and preferences (same indifference curves)
- They use factor inputs which are of uniform quality
- They all use the same technology

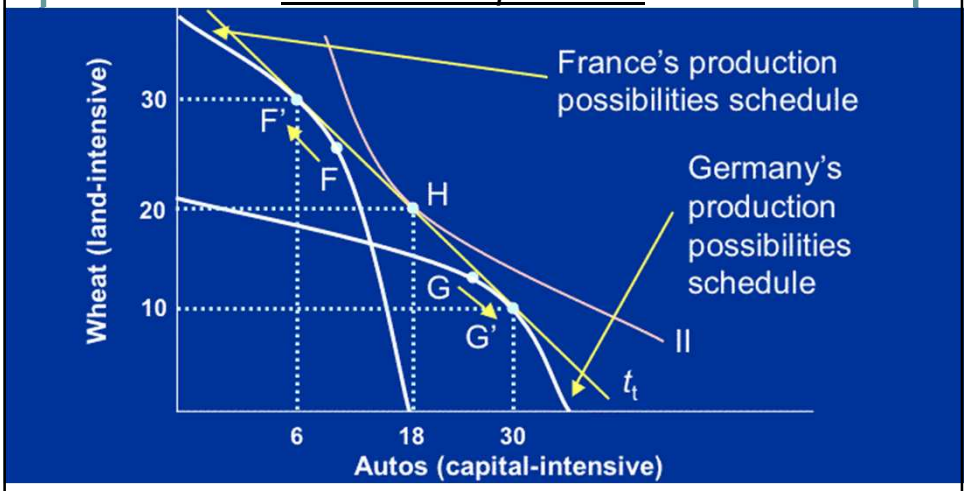
Comparative advantage according to factor endowment theory

Autarky equilibrium



Comparative advantage according to factor endowment theory

Post-trade equilibrium



Factor endowment theory: implications

- Factor price equalization
  - The shift within each nation towards use of cheaper factors, and away from expensive ones, leads to more equal factor prices (if factors are mobile)
- Distribution of income
  - Trade changes domestic distribution of income as demand for different factors changes
- Tests of factor endowment theory
  - Emphasize the importance of varieties of different factors (such as human capital) and accounting for changes in resource endowment; other explanations are also important

Distribution of income

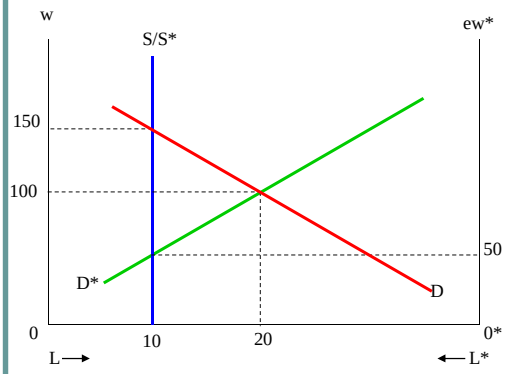
Does trade worsen inequality?

- Trade theory suggests that countries with abundant skilled labor will import goods which are made with unskilled labor
- Equilibrium wage ratios for skilled/unskilled labor are affected by trade and technology change, immigration, and education & training
- Evidence suggests that trade contributes relatively little to wage inequality, compared to technological change and other factors; better education and training are potential solutions

Factor movement

- The movement of production factors as capital and labor are more frequently between more countries
- Capital movement: corporate investment, stock exchange, bonds, loans, remittances,...
- Labor movement from lower to higher income areas
- How do globalization and international trade affect on the labor movement?

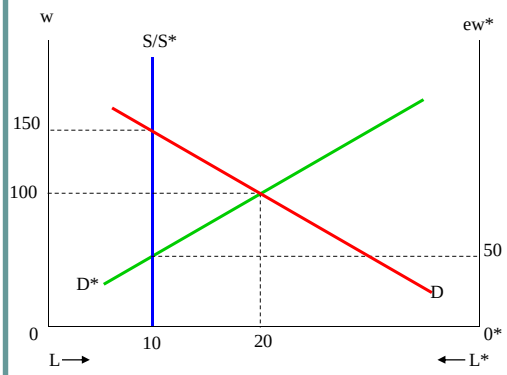
Labor movement



The world market of labor

- Labor market in country A has its demand curve D and wage level *w* from the left side of the graph
- Labor market in country B has its demand curve D* and wage level *ew** from the right side of the graph
- For eg., A has 10 million of labor, B has 30 million, represented by the relative supply curve S/S*
- The wage level of A is 150 and of B is 50.

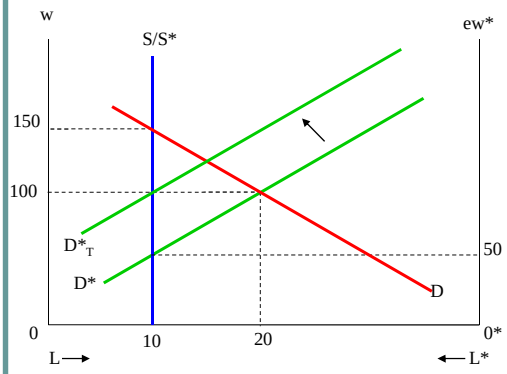
Labor movement



The world market of labor

- The wage difference between two countries cause migration (legal or illegal).
- *Is the migration equalize the wage gap?*

Labor movement



The world market of labor

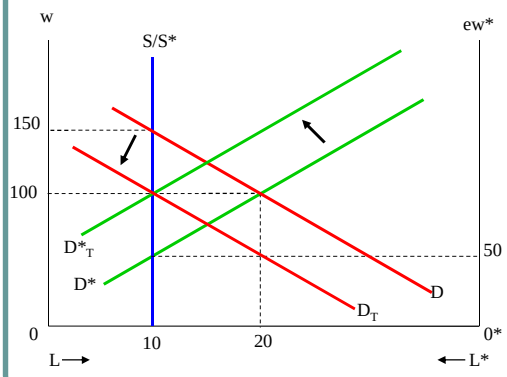
- With free trade, the country B would concentrate into labor-intensive production to use as more as possible to export labor-intensive products (eg. Agricultural, manufactural products)

=> Demand for labor increase

=> D* shift to D^*_T

=> Wage in B increases from 50 to 100

Labor movement



The world market of labor

In country A, for lack of labor, its economy would concentrate to produce and export capital-intensive products

=> A import labor-intensive products

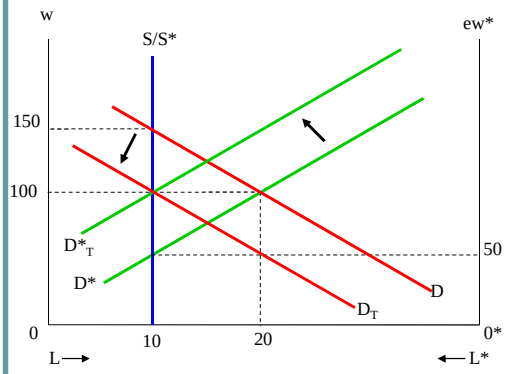
=> Decline in domestic labor-intensive production

=> Decrease in demand for labor

=> Demand curve D shift to D_T

=> Labor wage decrease from 150 to 100

Labor movement

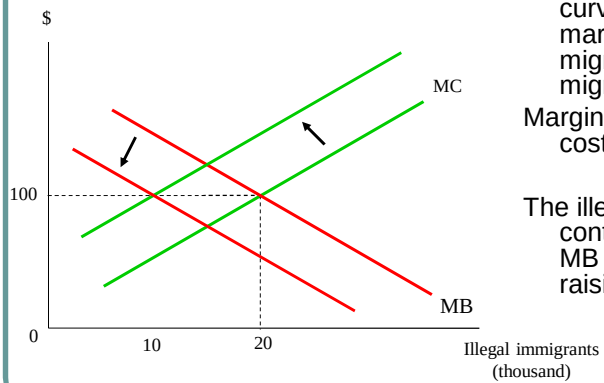


The world market of labor

Free trade contributes to mitigate the pressure of labor migration because it has a same effect to narrow the wage gap between the two countries.

=> Wage equality.

Controling illegal migration



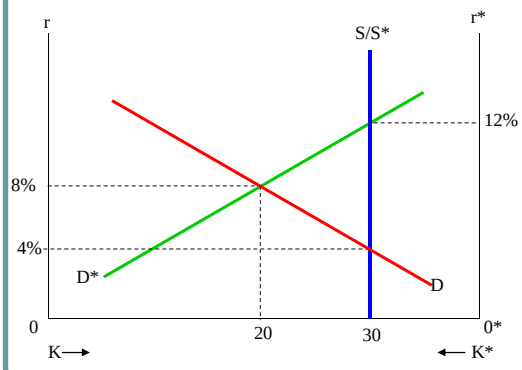
Controlling illegal migration

The marginal benefit (MB) curve represents the marginal benefit from migration for potential migrant.

Marginal cost (MC) is the cost for making the move.

The illegal migration can be controlled by lowering the MB of migrants or by raising their MC

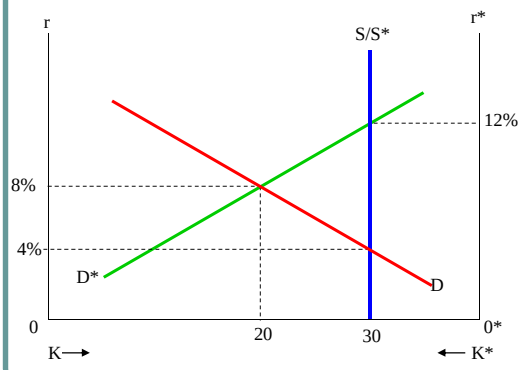
Capital movement



The world capital market

- The capital market in country A has its demand curve D downward from left to right with interest r
- The capital market in country B has its demand curve D* downward from right to left with interest r*
- For eg., A has 30 trillion USD, B has 10 trillion, represented by the relative supply curve S/S*
- Interest in A is 4% and in B is 12%.

Capital movement



The world capital market

- Similar with the labor movement justification, the interest in both countries should become 8% equally because of free trade

=> No capital movement between the two countries

=> Free trade help to slowdown the capital movement between the two countries

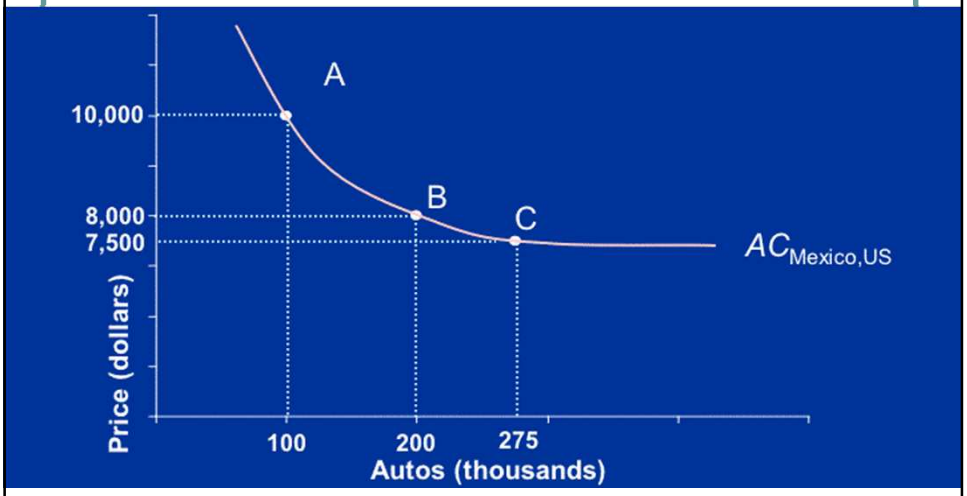
Discussion

- How does the free trade in globalization affect to Vietnamese capital and labor market?
- Does natural resource (especially aquatic resource) move between countries with free trade?

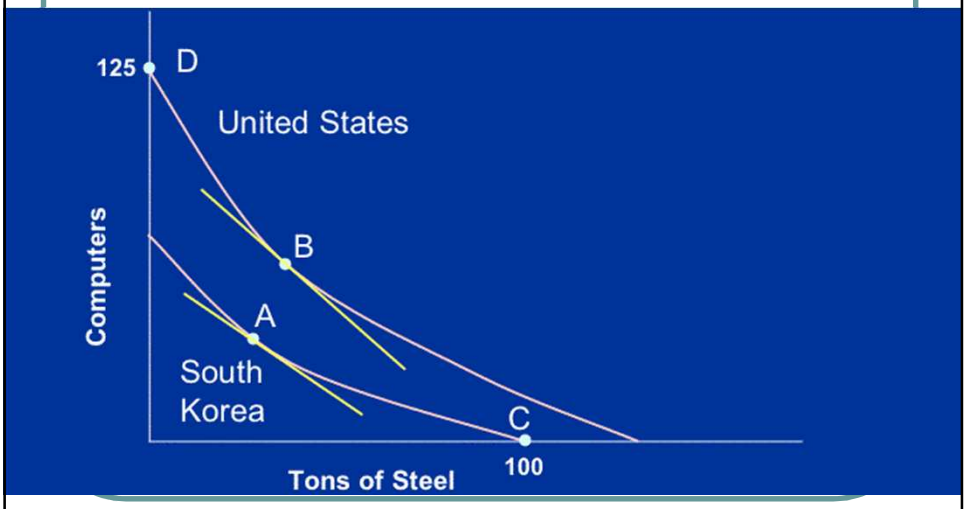
Economies of scale & specialization

- Economies of scale provide incentives for specialization, since per unit costs go down as production increases
- Trade provides a larger potential market for products, making higher production levels possible

Economies of scale as basis for trade



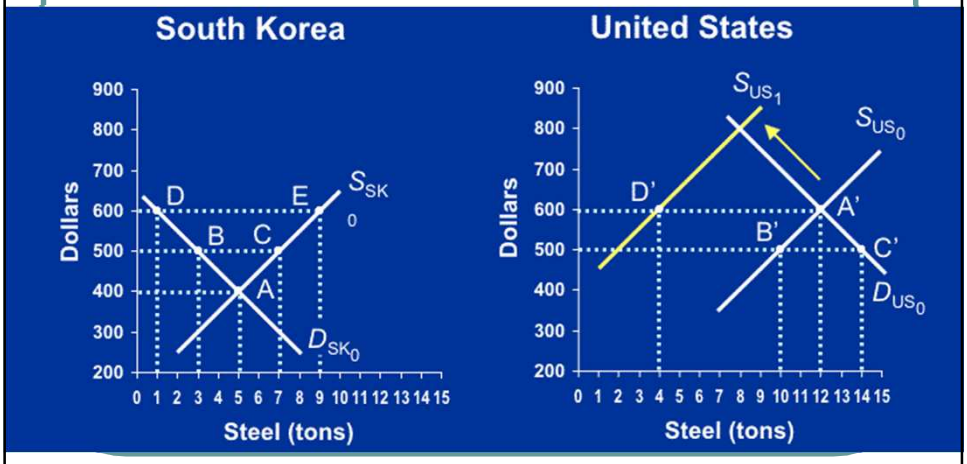
Trade & specialization under decreasing costs



Trade & the environment

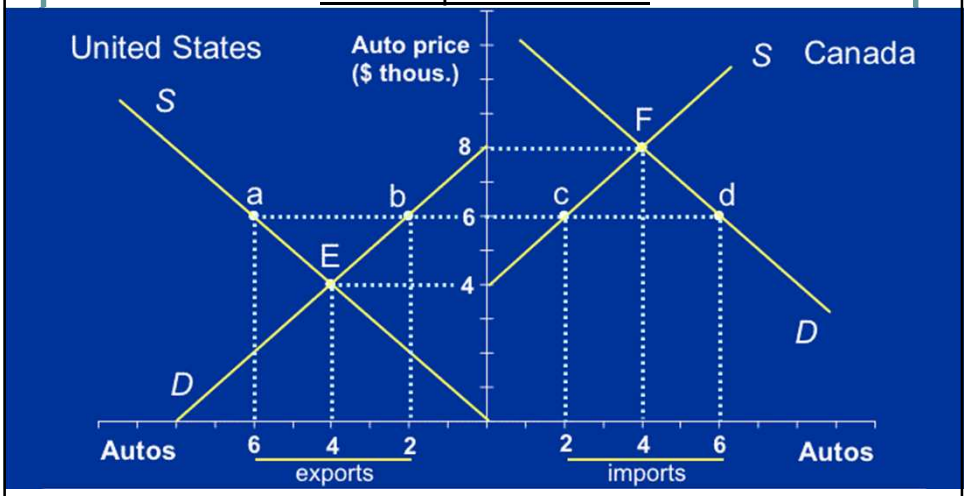
- Environmental regulation can lead to a policy tradeoff
  - Increased costs can reduce comparative advantage of regulated industry
  - Public receives health and environmental benefits
- Concern that polluting industries would move to poor countries with less regulation
  - But studies indicate that environmental rules have a small role in investment location decisions
- Polluter-pays principle: incentive to find ways to reduce pollution at least cost

Trade effects of pollution-control regulations



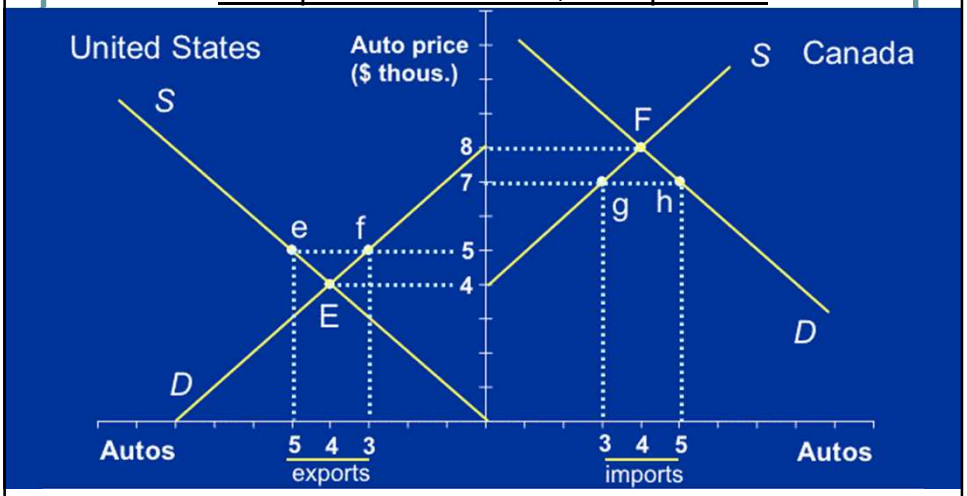
Free trade under increasing costs

No transportation costs



Free trade under increasing costs

Transportation costs of $2000 per auto



Specific factor theory

- Looks at the income distribution effects of trade in the short run, when some factor inputs are not mobile among sectors
- Indicates that workers may be better or worse off, depending on preferences
- Predicts that owners of factors used in export industries gain from trade, while owners of factors used in import-competing industries will lose from trade

Relative prices and the specific factor model