

# International Trade: Theory and Policy

**Lecture 2**

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# **Topic 1. Issues of modern International Trade Theory.**

## **Technical concepts of International Trade Theory and general equilibrium in closed economy.**

- 1.1. Structure, problems and specific features of International Trade Theory.  
What is traded? Who is trading – countries or firms? In which sort of competition on global markets?
- 1.2. General equilibrium of production sector in closed economy. Concept of technical and market efficiency in production.
- 1.3. Interrelation between technology and production possibility curve.
  
- 1.4. General equilibrium of household sector in closed economy. Concept of social indifference curves.
- 1.5. General equilibrium in closed economy.

## **(1.4.) General equilibrium of household sector in closed economy (model of pure exchange economy)**

### **(1) Exogenous parameters:**

- Preferences of households (at least 2 households) – utility functions:
  - $U_1 = U_1(X_1, Y_1)$ ;
  - $U_2 = U_2(X_2, Y_2)$ .
- Final goods endowments of households :
  - $X^0 = X_1^0 + X_2^0$ ;
  - $Y^0 = Y_1^0 + Y_2^0$ .
- Market structure on the final goods markets – perfect competition.

### **(2) Endogenous parameters:**

- Equilibrium consumption of final goods by households:  $X_1^*$ ,  $X_2^*$ ,  $Y_1^*$ ,  $Y_2^*$ ;
- Equilibrium relative prices of final goods –  $P_x^*/P_y^*$ .

### **(3) Graphical illustration of exogenous parameters.**

### **(4) Graphical illustration of endogenous parameters of the model.**

## (1.4.) Characteristics of the utility function

- ❑ **General characteristics of the utility function:**
  - ❑ Substitution / complementarity between goods;
  - ❑ Homogeneity of the utility function;
  - ❑ Relative intensity of consumed goods.
- ❑ **Specific features of the utility function in the model:**
  - ❑ Incomplete substitution / complementarity between goods in consumption;
  - ❑ Homogeneous utility function of degree  $\leq 1$ ;
  - ❑ Consumers differ in relative intensity of consumed goods.
- ❑ **Graphical illustration of exogenous parameters.**
- ❑ **Pareto-optimality in household sector:**

*Named for the Italian economist Vilfredo Pareto*

  - ❑ Final goods allocation among individuals is Pareto-optimal if in the event of any reallocation the utility of one individual's choice cannot be increased without reducing the utility of at least one individual's choice.

**See Graphical illustration of endogenous parameters.**

## (1.4.) Algebraic solution of general equilibrium model in the household sector

### □ Algebraic solution (scheme):

- Maximization of the utility function  $U_1 = U_1(X_1, Y_1)$  under budget constraint  $(P_x X_1 + P_y Y_1) = (P_x X_1^0 + P_y Y_1^0)$ 
  - $\Rightarrow$  Demand functions of household 1:  $X_1(P_x/P_y), Y_1(P_x/P_y)$  (1);
- Maximization of the utility function  $U_2 = U_2(X_2, Y_2)$  under budget constraint  $(P_x X_2 + P_y Y_2) = (P_x X_2^0 + P_y Y_2^0)$ 
  - $\Rightarrow$  Demand functions of household 2:  $X_2(P_x/P_y), Y_2(P_x/P_y)$  (2);
- Market equilibrium conditions on the two markets (using functions (1) and (2)):
  - $X_1(P_x/P_y) + X_2(P_x/P_y) = X^0$  (3),
  - $Y_1(P_x/P_y) + Y_2(P_x/P_y) = Y^0$  (4);
  - $\Rightarrow$  Equilibrium relative price:  $P_x^*/P_y^*$ ;
- We plug equilibrium price into demand functions (1) and (2), and receive equilibrium consumption of goods by two households:  $X_1^*, X_2^*, Y_1^*, Y_2^*$ .

### □ Graphical illustration of the model solution.

See Graphical illustration of the endogenous parameters.

## (1.4.) The concept of community indifference curves

- **What for?**
  - Describe consumption in the whole country;
  - Normative analysis for the whole economy.
- **The idea of community indifference curves – independence from income distribution among the households:**
  - Community indifference curves independent from income distribution among households occur if aggregated demand in the economy is a function only of relative prices and total income in the economy.
- **Requirements for the households' preferences structure:**
  - (1) Identical preferences of households in the economy;
  - (2) Preferences of households are homothetic (quasi-homothetic).

*Every homogeneous function is homothetic, but not every homothetic function is homogeneous. **Example.***

# (1.5.) General equilibrium model of closed economy

## (1) Exogenous parameters :

- Production technology (at least 2 goods) – production functions:
  - $X = f_x (K_x, L_x)$ ;
  - $Y = f_y (K_y, L_y)$ .
- Resource endowment in the economy (at least 2 resources) – capital (K) and labor (L):
  - $K = K_x + K_y$ ;
  - $L = L_x + L_y$ .
- Households' preferences (at least 2 households) – utility functions:
  - $U_1 = U_1 (X_1, Y_1)$ ;
  - $U_2 = U_2 (X_2, Y_2)$ .
- Market structure on the final goods markets – perfect competition.
- Market structure on the production factor\* markets – perfect competition.

\* *production factors (in other words, resources or inputs)*

## (1.5.) General equilibrium model of closed economy (continued)

### (2) Endogenous parameters:

- Equilibrium output and consumption of final goods:  $X^*$ ,  $Y^*$ ;
- Equilibrium consumption of resources:  $K_x^*$ ,  $K_y^*$ ,  $L_x^*$ ,  $L_y^*$ ;
- Equilibrium relative prices of final goods (*price ratio*):  $P_x^*/P_y^*$ ;
- Equilibrium relative prices of resources :  $w^*/r^*$ .

### (4) Equilibrium conditions:

- Producer optimization:  $MRT = P_x^*/P_y^*$ ;
- Consumer optimization:  $MRS = P_x^*/P_y^*$ ;
- Market clearing:  $X_c = X_p$ ,  $Y_c = Y_p$ .



## (1.5.) General equilibrium model of closed economy (continued)

(4) Graphical illustration of general economic equilibrium.

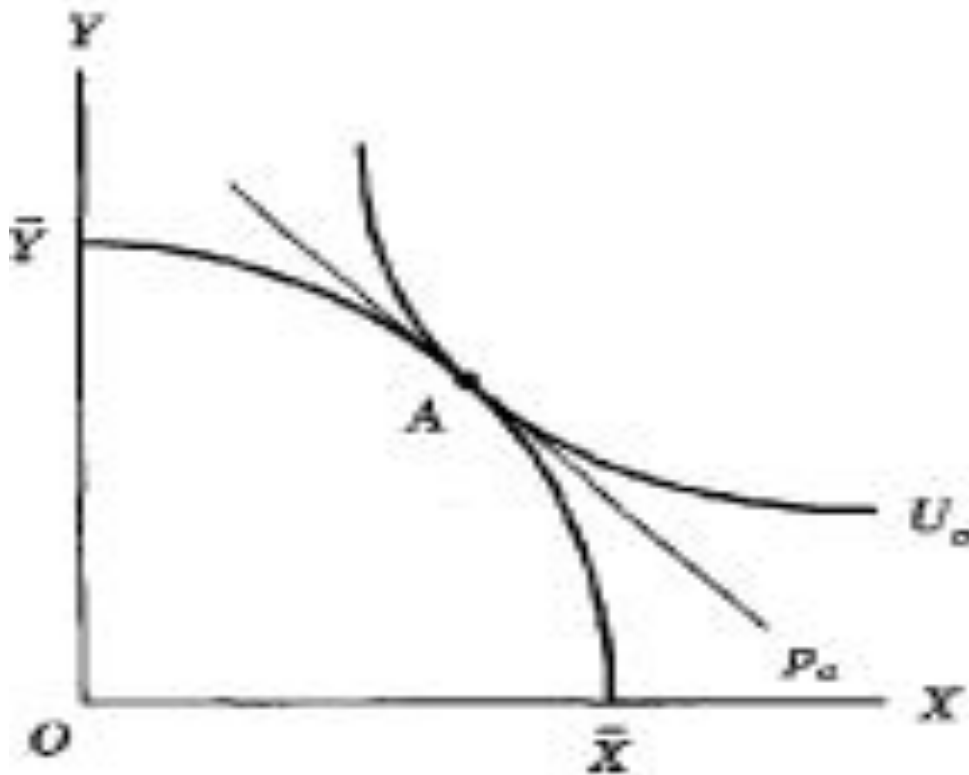


Figure 2.1. Closed-economy general equilibrium  
Source: Markusen et al. (1995), Ch. 4, P. 52

## Homework:

- (1) Exercise session 2 «General equilibrium of household sector and general equilibrium in closed economy»
- (2) Think about topics for reports during exercise sessions and start working on a paper review (due 1 November 2016)

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## **Topic 2. General equilibrium in the open (trading) economy**

- 2.1. General equilibrium conditions in the open economy (the case of small economy).
- 2.2. The concept of the excess demand function.
- 2.3. International general equilibrium conditions.