

Sambungan Bab 3...

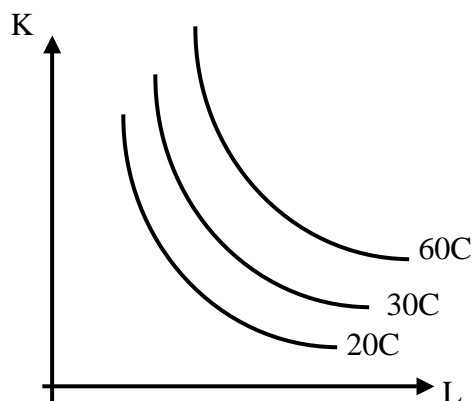
3.4 Pengoptimuman dlm pengeluaran

- Perbincangan pengoptimuman dlm pertukaran boleh dilanjut kpd pengoptimuman dlm pengeluaran.
- Pengoptimum:

<u>Pertukaran</u>	<u>Pengeluaran</u>
- 2 individu	- 2 output
- 2 brg pengguna	- 2 input
- KPS/GB	- Isokuan/Isokos
- MRS	- MRTS

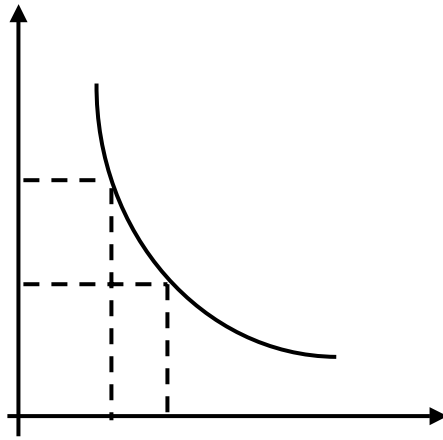
1

Sblm ini, buat ulangkaji ttg isokuan dan isokos...



- **Isokuan** adalah keluk yg menunjukkan satu tingkat pengeluaran yang boleh dihasilkan oleh pelbagai kombinasi input

2

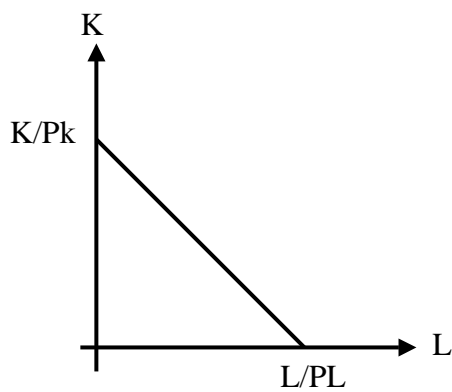


MRTS – kadar penggantian sut teknik
 -jumlah sst input yg harus dilepaskan utk mdpt satu unit tambahan input lain, supaya tggk keluaran tdk berubah.
 -kecerunan isokuan
 -hukum MRTS smk berkurangan

3

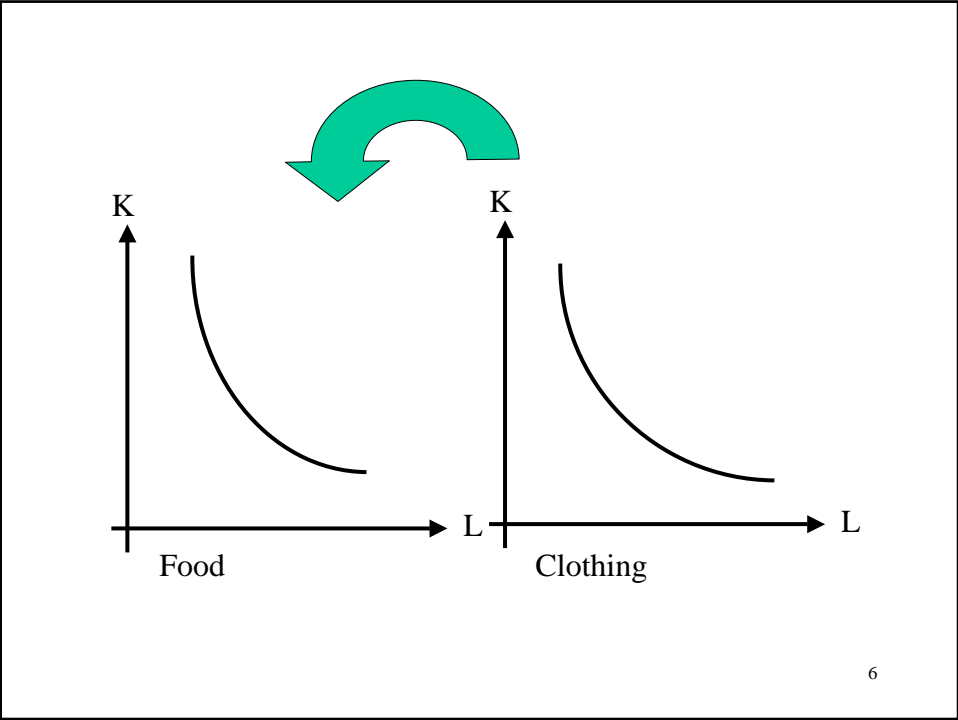
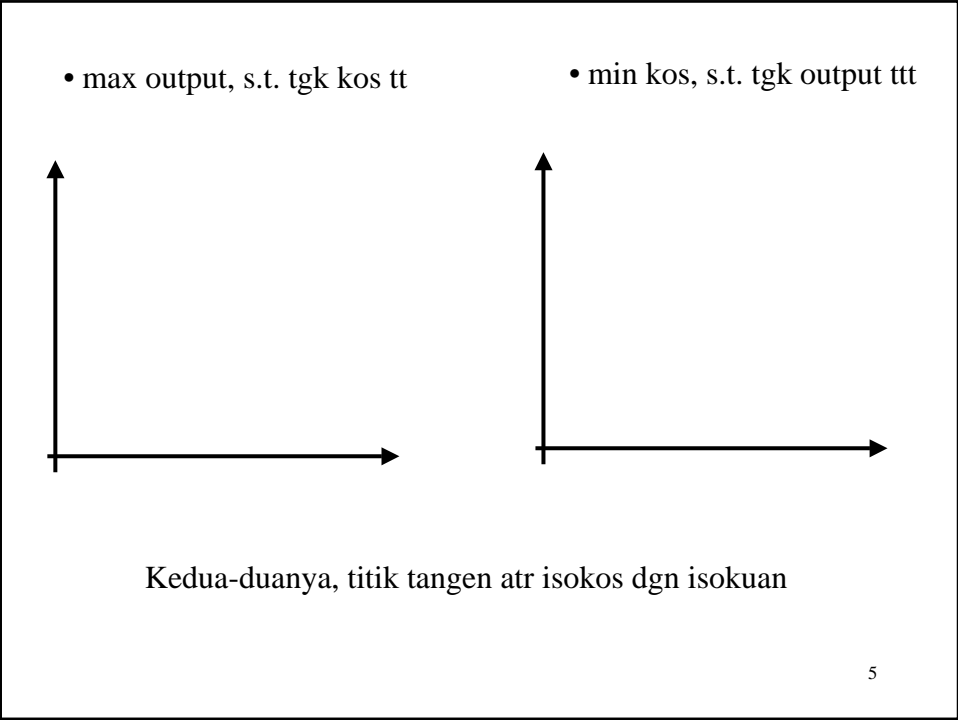
Isokos

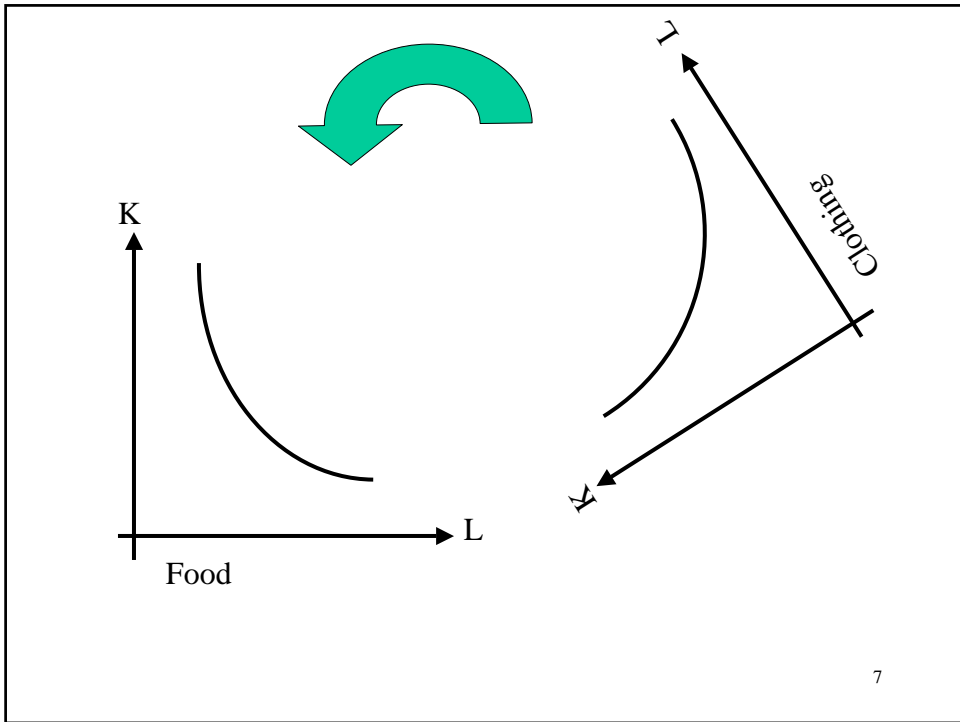
Garis kos sama – kombinasi input yg dpt diperolehi dengan sejumlah kos tertentu.



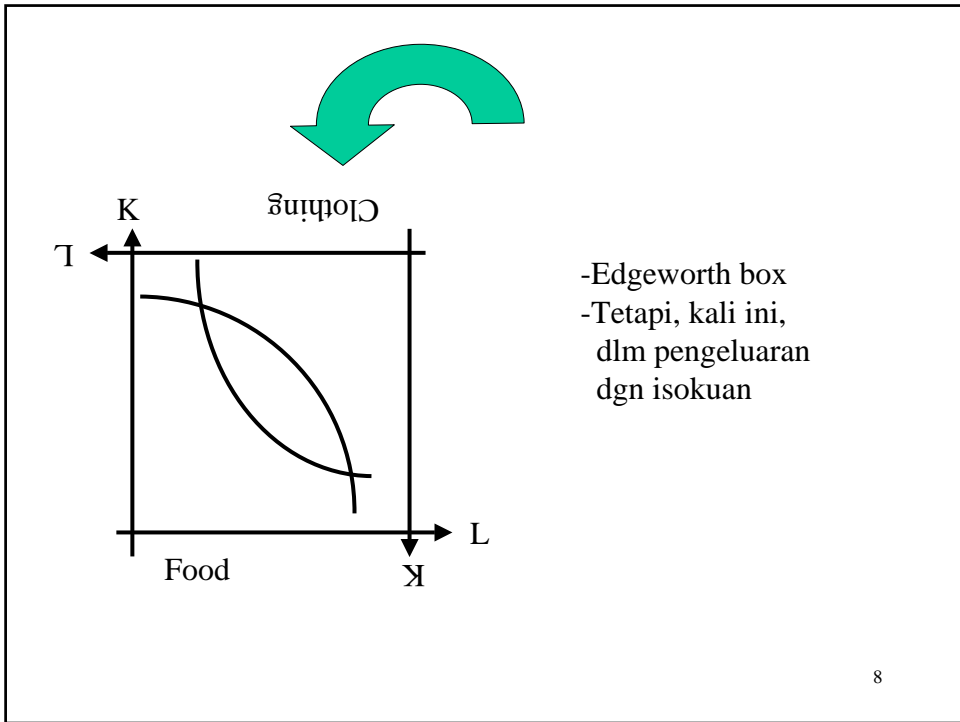
Kecerunan isokos = ...

4





7



-Edgeworth box
 -Tetapi, kali ini,
 dlm pengeluaran
 dgn isokuan

8

Kembali kpd pengoptimuman dlm pengeluaran...

- Assume:
 - Two fixed inputs: capital and labor
 - Produce same two goods: food and clothing
 - Many consumers own inputs to production and earn income from selling them
 - Income allocated between goods

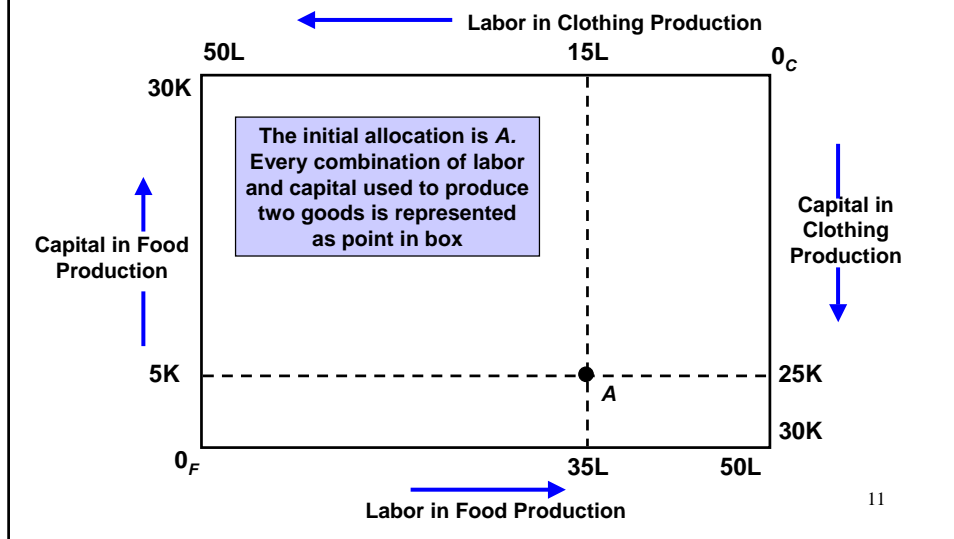
9

Efficiency in Production

- Using the Edgeworth box diagram, we can show efficient use of inputs in production
 - Labor on horizontal axis
 - Capital on vertical axis
 - 50 hours of labor and 30 hours of capital available
 - Each origin is an output

10

Production in an Edgeworth Box



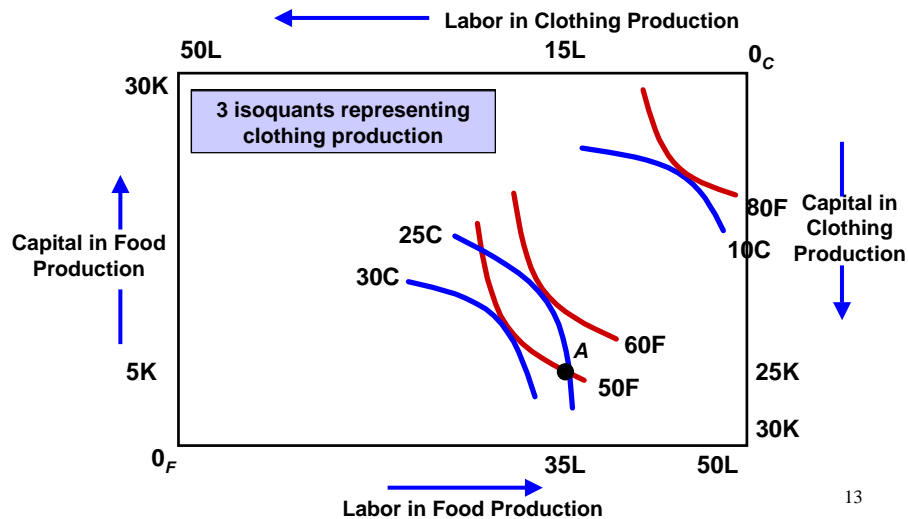
11

Production in an Edgeworth Box

- Each point in box represents the labor and capital inputs in the production of food and clothing.
- Can use production isoquants to show levels of output produced with each combination of inputs
 - 3 isoquants representing 50, 60 and 80 units of food
 - 3 isoquants representing 10, 25 and 30 units of clothing

12

Production in an Edgeworth Box



13

Production in an Edgeworth Box

- To find efficient production, must find different combinations of inputs used to produce the two outputs
- An allocation of inputs is **technically efficient** if the output of one good cannot be increased without decreasing the output of another goods

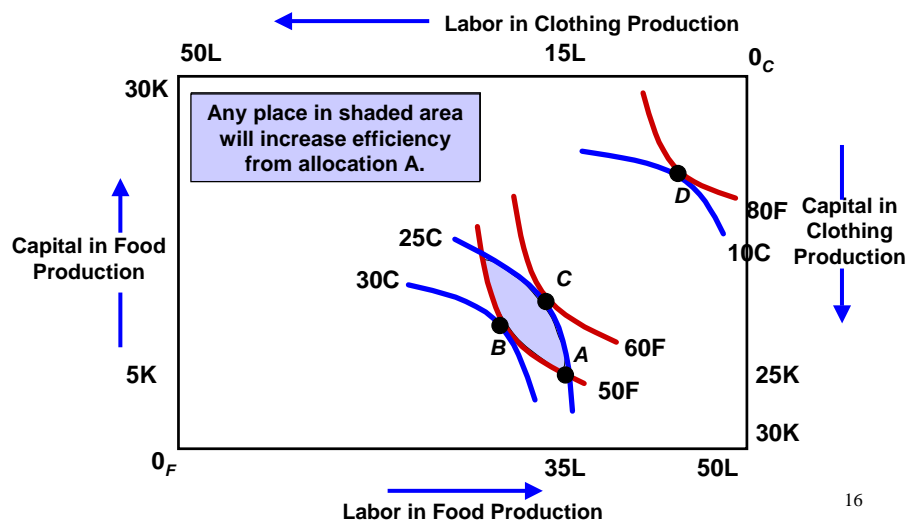
14

Production in an Edgeworth Box

- Production at point A is inefficient since we can increase production of both goods.
 - Shaded area indicates increases in production of both goods if begin at A
 - Allocation A could exist if a labor union market has enforced inefficient work rules

15

Production in an Edgeworth Box



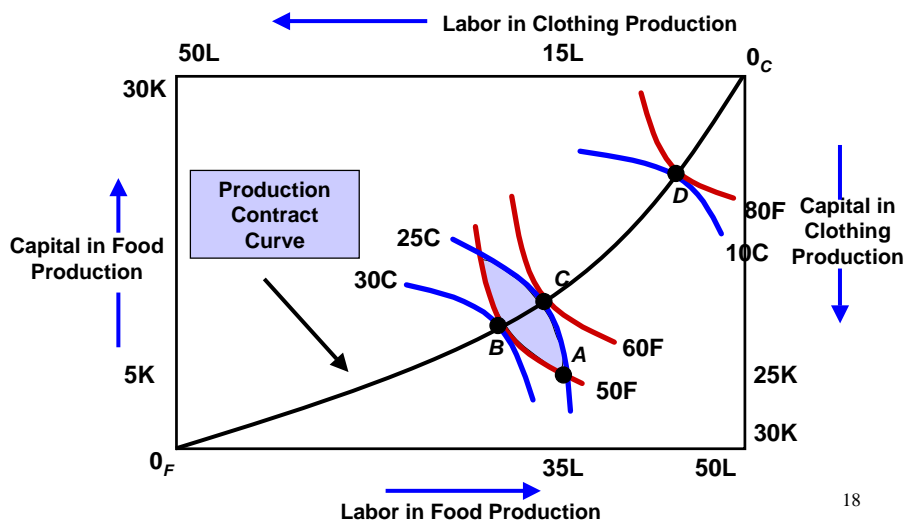
16

Production in an Edgeworth Box

- Points B and C are efficient allocations and therefore lie on the **production contract curve**
 - Curve showing all technically efficient combinations of inputs.
 - Curve connects the origins, O_F and O_C
 - All points on curve are tangencies between two isoquants

17

Production in an Edgeworth Box



18

Keseimbangan di pasaran persaingan sempurna dan pengoptimuman dlm pengeluaran

- min kos pengeluaran, setiap pengeluar mengeluarkan pd:

$$MPL / MPK = w / r$$

Di mana, $MPL / MPK = MRTS = w / r$

Iaitu, satu titik di atas keluk production contract.

Maka, keseimbangan di PPS bg pengeluar, juga mencapai pengoptimuman dlm pengeluaran.

19

3.5 Pengoptimuman kombinasi produk

- lihat dulu keluk kemungkinan pengeluaran
- kemudian, gabung KKP dgn KPS

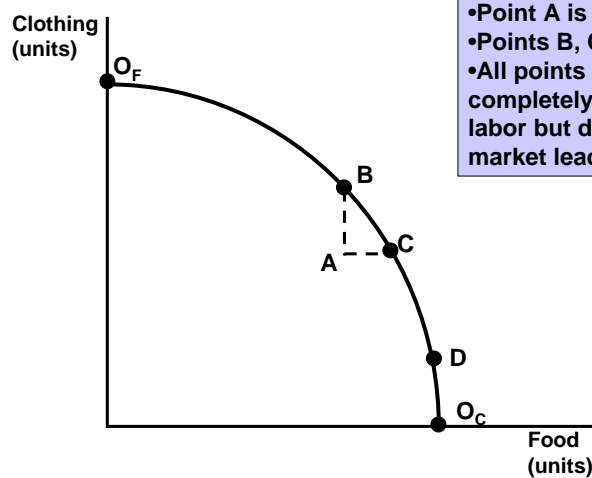
20

Production Possibilities Frontier

- PPF shows the various combinations of two goods that can be produced with fixed quantities of inputs.
- Frontier is derived from the production contract curve
- Points on PPF show efficiently produced levels of both goods

21

Production Possibilities Frontier



- Point A is inefficient
- Points B, C and D are efficient
- All points in triangle ABC completely utilize capital and labor but distortion in labor market leads to inefficient use

22

Production Possibilities Frontier

- PPF is downward sloping
 - In order to produce more of one good, must give up producing some of the other good
- PPF is concave
 - Slope is the MRT which increases as the level of production of food increases

23

Production Possibilities Frontier

- Marginal rate of transformation (MRT) of food for clothing is the magnitude of the slope of the frontier at each point
 - Amount of one good that must be given up to produce one additional unit of a second good
 - How much clothing must be given up to produce one additional unit of food
 - As we increase the production of food by moving along the PPF, the MRT increases

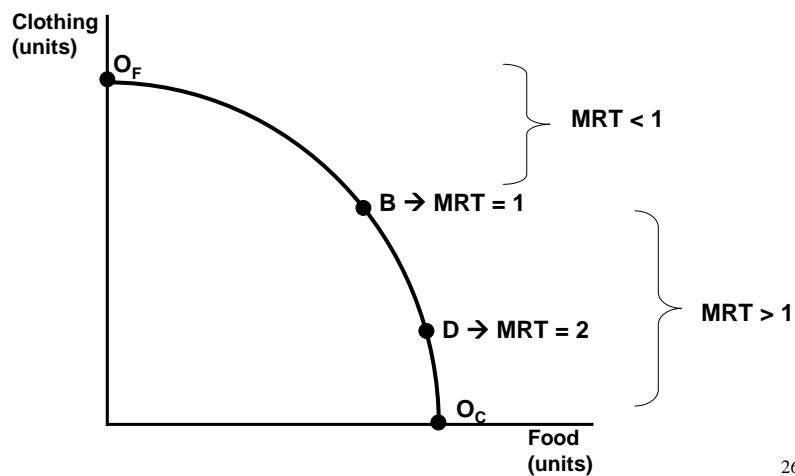
24

Marginal Rate of Transformation

- The productivity of labor and capital differs depending on whether the inputs are used to produce more food or clothing.
 - Starting where only clothing is produced, MP of labor and capital are relatively low
 - Transferring some to food production where MP are relatively high
 - As we do this, MP in food decreases and MP in clothing increases

25

Production Possibilities Frontier



26

Marginal Rate of Transformation

- Can also describe in terms of costs
 - When producing at OF the MC of food is very low and MC of clothing is very high
 - When MRT is low, so is the ratio of the MC of producing food to clothing
 - Slope of PPF measures the MC of producing one good relative to the MC of producing the other

$$MRT = \frac{MC_F}{MC_C}$$

27

Efficiency in Output

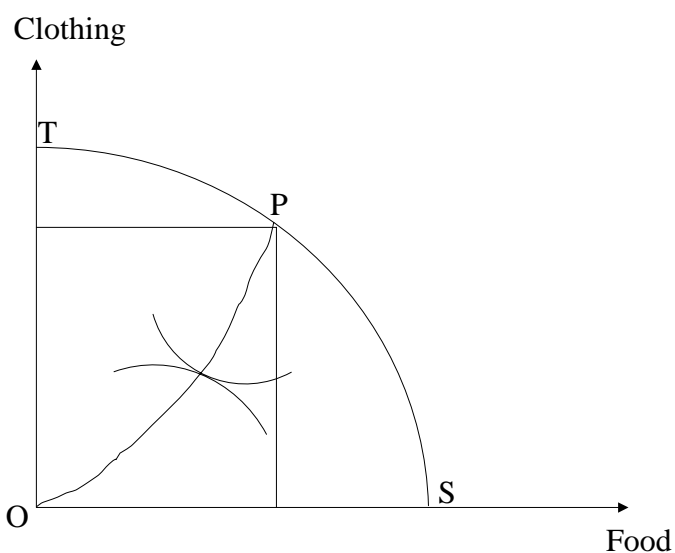
- For efficiency,
 - Good produced at minimum cost
 - Must be produced in combinations that match peoples willingness to pay
 - MRS = consumer's WTP for additional food by consuming less clothing
 - MRT = cost of additional unit of food in terms of producing less clothing
- Efficiency means $MRS = MRT$

28

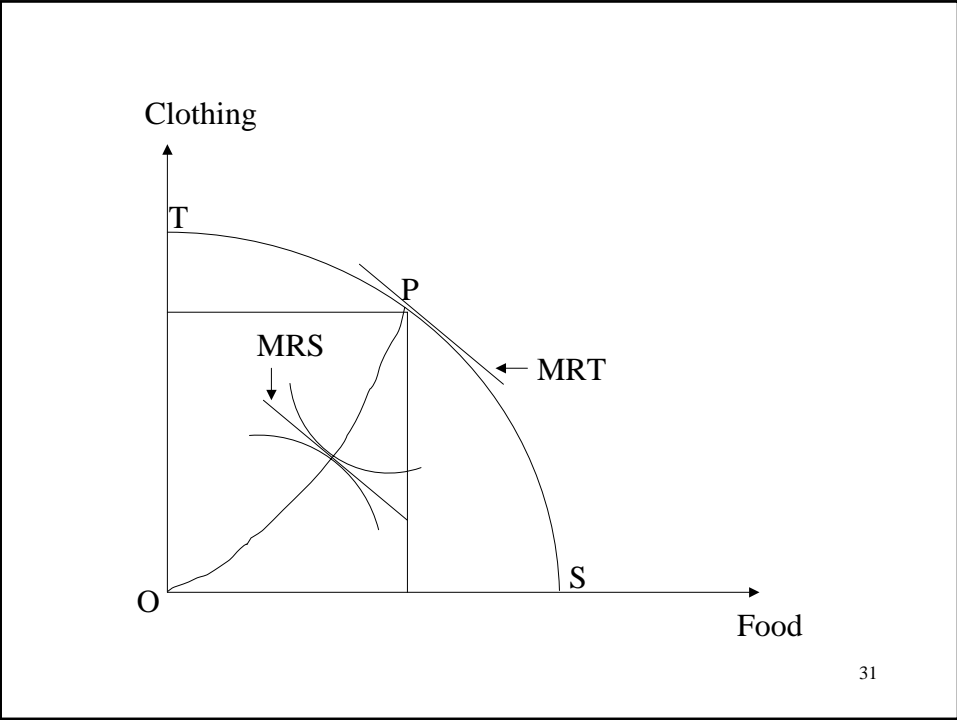
Efficiency in Output

- What if $MRT \neq MRS$
 - Suppose $MRT = 1$ and $MRS = 2$
 - Consumer willing to give up 2 units of clothing to get 1 unit of food
 - Cost of getting additional food is only 1 unit of lost clothing
 - Too little food is being produced
 - Food production must increase, MRS falls and MRT increase until two are equal again

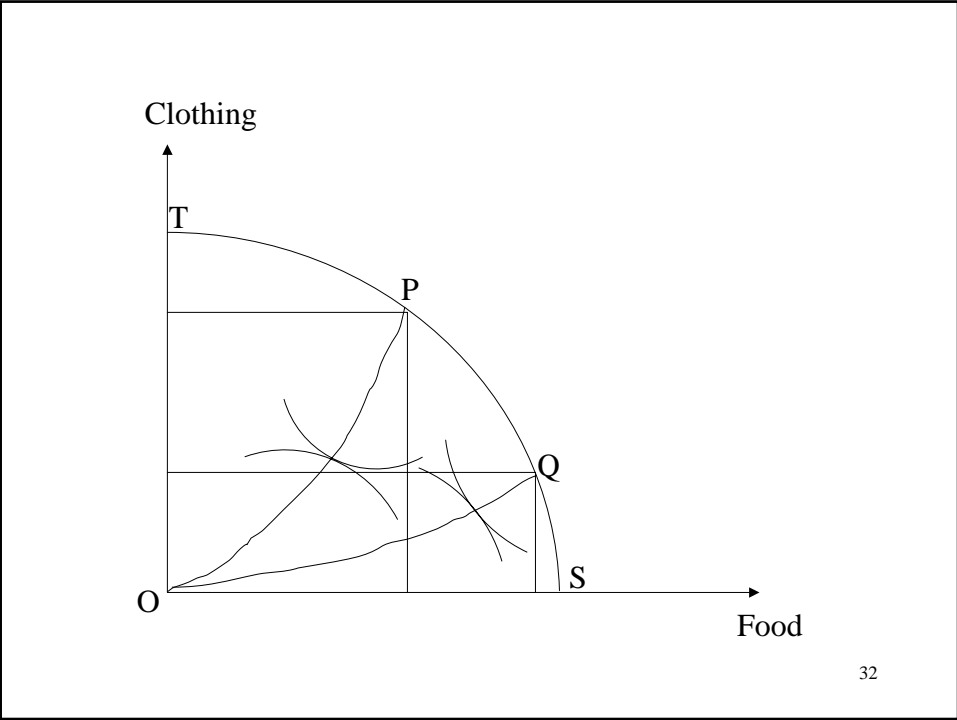
29



30



31



32

Ingat, syarat pengoptimuman pareto:

- 1st order conditions:
 - $MRS^1_{YX} = MRS^2_{YX} = P_X/P_Y$ (Efficiency in Exchange)
 - $MRTS^X_{LK} = MRTS^Y_{LK} = w/r$ (Efficiency in Production)
 - $MRT_{YX} = MRS^1_{YX} = MRS^2_{YX} = P_X/P_Y$ (Efficiency in Output)

Adakah PPS memenuhi semua syarat di atas?

33

Consumer Equilibrium in a Competitive Market

- Competitive equilibrium
 1. Because the indifference curves are tangent, all MRSs are equal between consumers
 2. Because each indifference curve is tangent to the price line, each person's MRS is equal to the price ratio of the two goods

$$MRS^J_{FC} = \frac{P_F}{P_C} = MRS^K_{FC}$$

- Maka, syarat pengoptimuman dlm pertukaran dipenuhi

34

Producer Equilibrium – Competitive Input Markets

- If input markets are competitive, an efficient point will be achieved
- In competitive input markets
 - Wage rate, w , will be equal in all industries
 - Rental rate of capital, r , will be equal in all industries

35

Producer Equilibrium – Competitive Input Markets

- We saw before that if producers minimize costs, they will choose inputs to the point where the ratio of the marginal products of the two inputs is equal to the ratio of input prices:

$$\frac{MP_L}{MP_K} = \frac{w}{r}$$

36

Producer Equilibrium – Competitive Input Markets

- Ratio of marginal products is the same as the marginal rate of technical substitution of labor for capital:

$$\frac{MP_L}{MP_K} = \frac{w}{r} = MRTS_{LK}$$

- Maka, syarat pengoptimuman dlm pengeluaran dipenuhi

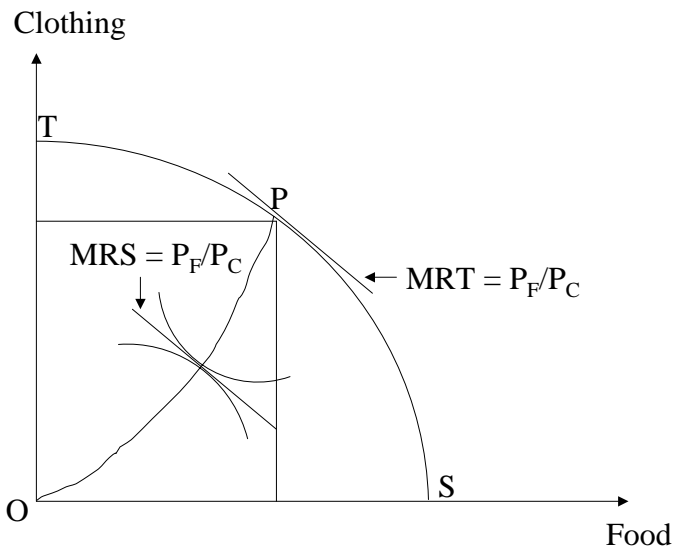
37

Efficiency in Output Markets

- For perfectly competitive markets, all consumers allocate their budgets so their MRS between two goods are equal to the ratio of prices
- Profit maximizing firms produce output to the point where price is equal to MC ($P = MC$)
- MRT is equal to the MRS

$$MRT = \frac{MC_F}{MC_C} = \frac{P_F}{P_C} = MRS$$

38



- Maka, syarat pengoptimuman kombinasi produk dipenuhi

39

Pendek kata,

- Pengoptimuman dlm pertukaran: $MRS^1_{YX} = MRS^2_{YX}$
Di mana, keseimbangan dicapai dgn setiap pengguna max utiliti
 $MRS^1_{YX} = MRS^2_{YX} = P_X/P_Y$
- Pengoptimuman dlm pengeluaran: $MRTS^X_{LK} = MRTS^Y_{LK}$
Di mana, keseimbangan dicapai dgn setiap pengeluar max untung
 $MRTS^X_{LK} = MRTS^Y_{LK} = w/r$
- Pengoptimuman kombinasi produk: $MRT_{YX} = MRS^1_{YX}$
Di mana, keseimbangan dicapai dgn setiap pengeluar keluar pada
 $P_F = MC_F$; $P_C = MC_C$ iaitu, $MRT_{FC} = MC_F / MC_C = P_F / P_C$
dan Pengguna max utiliti pd $P_F / P_C = MRS_{FC}$

Jadi, $MRS_{FC} = MRT_{FC}$

40

Now, we will see

two **BIG** theorems

in welfare economics...

41

Fundamental Theorems of Welfare Economics

- First Fundamental Welfare Theorem
 - If every relevant good is traded in a market at publicly known prices (i.e., if there is a complete set of markets), and if households and firms act perfectly competitively (i.e., as price takers), then the market outcome is Pareto optimal. That is, when markets are complete, **any competitive equilibrium is necessarily Pareto optimal.**

42

Fundamental Theorems of Welfare Economics

- The first welfare theorem provides a set of conditions under which we can be assured that a market economy will achieve a Pareto optimal result; it is, in a sense, the formal expression of Adam Smith's claim about the 'invisible hand' of the market.

43

Fundamental Theorems of Welfare Economics

- Second Fundamental Welfare Theorem
 - If household preferences and firm production sets are convex, there is a complete set of markets with publicly known prices, and every agent acts as a price taker, then any Pareto optimal outcome can be achieved as a competitive equilibrium if appropriate lump-sum transfers of wealth are arranged.

44

Fundamental Theorems of Welfare Economics

- The second welfare theorem states that under the same set of assumptions as the first welfare theorem plus convexity conditions, all Pareto optimal outcomes can in principle be implemented through the market mechanism. That is, a public authority who wishes to implement a particular Pareto optimal outcome (reflecting, say, some political consensus on proper distributional goals) may always do so by appropriately redistributing wealth and then “letting the market work.”

45

