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SU 1: BENCHMARK MODEL

- o Perfect world: Limited role for govt.
- o Real world: more comprehensive role for govt.
Why? : In solving eco problem market fails int. o
 - efficiency
 - equity

o Allocative efficiency (a normative approach)

- measure is Pareto norm - where it is impossible to ↑ utility/output of one person/sector without reducing that of another
i.e. utility (of consumers) is max. & output (of producers) is max.

- It occurs when 3 conditions hold

→ efficiency in consumption

$$MRS_{xy}^a = MRS_{xy}^b = P_x/P_y$$

→ efficiency in production

$$MRPT_{xy} = MC_x/MC_y = P_x/P_y$$

→ simultaneous (market) equilibrium.

$$MRS_{xy}^a = MRS_{xy}^b = MRPT_{xy} = P_x/P_y$$

Perfect competition ensures conditions are met.

You SHOULD BE ABLE TO :

- 1) State 3 conditions and describe... e.g. Condition 1: efficiency in consumption is where $MRS_{xy}^a = MRS_{xy}^b$ implying it is impossible to ↑ utility of A without ↓ utility of B
- 2) Illustrate and explain simultaneous equilibrium.



Efficiency in Consumption

- situation where it is impossible to \uparrow the utility of one consumer without thereby \downarrow the utility of another.
- Under PC consumers would max. utility (\equiv ID curve) sub. to his preferences & budget constraint (BL).
- Consumers face same relative price ratio (P_x/P_y)
- If P ratio diff. btwn. consumers they can \uparrow utility through exchange.
- Equilibrium occurs when BL is tangent to ID curves at a point. @ this point consumption is pareto efficient since A cannot be made better off through exchange (trade) without making B worse off.
- Many such points (equilibrium) linking these points we obtain a contract curve for consumption.
- Since slope of B (Price) L @ equilibrium linking = Price ratio P_x/P_y
- Slope of tangent to ID curves @ equilibrium = $MRS_{xy}^a = MRS_{xy}^b$
- \therefore slope of BL & slope of tangent are = it implies that:

$$MRS_{xy}^a = P_x/P_y = MRS_{xy}^b$$



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Efficiency in Production

o Pareto Optimal:

Where it is impossible to \uparrow prod. of X without \downarrow prod. of Y.

o Under PC each firm will try to max. output & min. cost.

o Equilibrium only possible when firms face \perp same equilibrium factor P ($\frac{w}{r}$).

o When isoquants are tangent = Pareto. These points linked form a contact curve.

o Contact curve derives PPC

o Slope of PPC = MRPT = MC_x / MC_y

o \therefore all points ON PPC : $MRPT_{xy} = MC_x / MC_y$

o Under PC X is prod. where ~~MC_x~~ $MC_x = P_x$
Y is prod. where $MC_y = P_y$

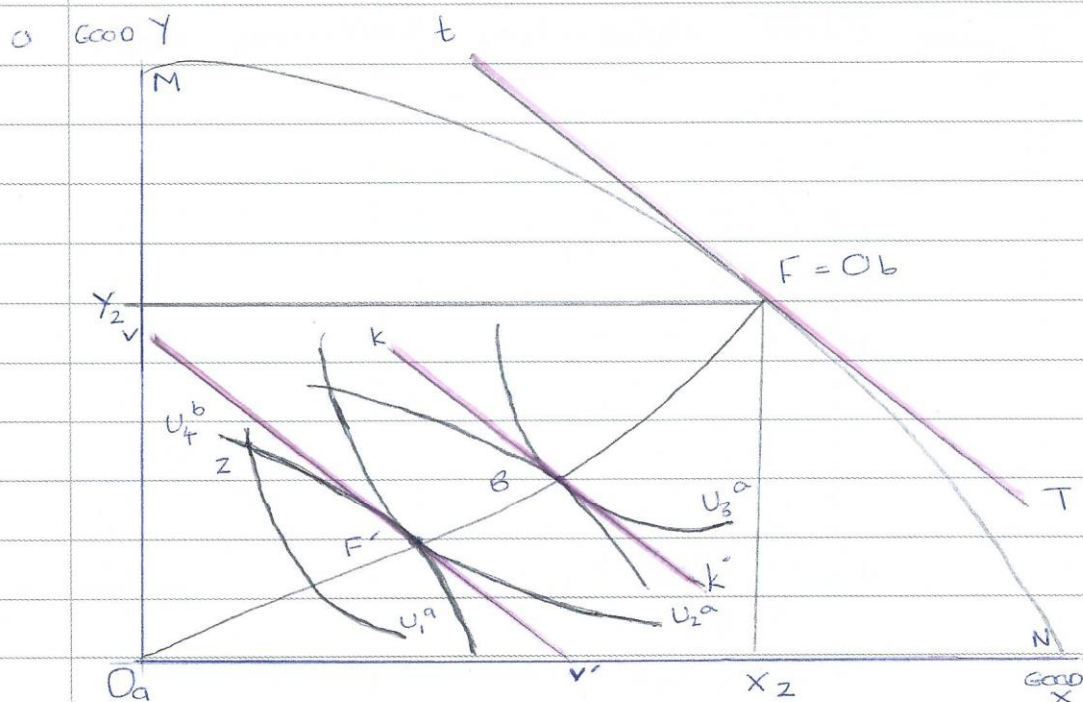
o \therefore MRPT = MC ratio it follows that
 $MRPT_{xy} = MC_x / MC_y = P_x / P_y$



Simultaneous Equilibrium in Consump. & product.

o In a competitive market:

- prod. will max. profits where $MRPT_{xy} = \frac{MC_x}{MC_y} = \frac{P_x}{P_y}$
- cons. will use their budgets so that $MRS_{xy}^a = \frac{P_x}{P_y} = MRS_{xy}^b$
- equilibrium price (P_x/P_y) same for prod. & cons.
it is a common denominator in both equilibrium conditions
- $MRPT_{xy} = MC_x/MC_y = P_x/P_y = MRS_{xy}^a = MRS_{xy}^b$



(aka market)
Simultaneous
equilibrium

- Slope of tangent to PPC (tt') indicates $MRPT_{xy} = \frac{MC_x}{MC_y} = \frac{P_x}{P_y}$
- Slope of tangent to indiff. curves (vv') indicates $MRS_{xy}^a = \frac{P_x}{P_y} = MRS_{xy}^b$
- Since relative price ratio = in both equations
 $MRPT_{xy} = \frac{MC_x}{MC_y} = P_x/P_y = MRS_{xy}^a = MRS_{xy}^b$

- allocative efficiency (F & F') requires prod. & consump. efficiency (vv' & tt' are equal)
- Gains from exchange possible until $MRPT = MRS$
- occurs at diff. distributions of income.



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- o If \perp top-level equilibrium condition is to be met, the slopes of UU' & tt' must be parallel.
- o If not parallel: P ratios for cons. & prod. diff.
 \therefore pareto inefficiency.
- o \uparrow output of X & \downarrow output of Y or vice versa until the two ratios are the same.
- o Not parallel indicates $MRS_{xy} \neq MRPT_{xy}$.



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SU 1 : EXAM Qs

Q. Oct 2012 : SA Q1 (b) (1 mark)

Oct 2013 : S:A Q1 (a) (2 marks)

A. $MRPT_{xy} = \frac{MC_x}{MC_y} = \frac{P_x}{P_y} = MRS_{xy}^a = MRS_{xy}^b$

Q. May 2013 : S:A Q1 (a) (2 marks)

A. X-inefficiency (or technical inefficiency) means that the firms are not max. profits or FOP (L & K) are not max. their welfare.

Q. May 2013 S:B Q4 (a) (10 marks)

A. (i) $MRPT_{xy} = \frac{MC_x}{MC_y} = \frac{P_x}{P_y} = MRS_{xy}^a = MRS_{xy}^b$

(ii) See graph for simultaneous equilibrium

(iii) Point F: It is not possible to ↑ output of either 2 commodities, or utility of either of the 2 consumers, ~~and~~ without ↓ that of the other.