Ch 10 Rational Consumer

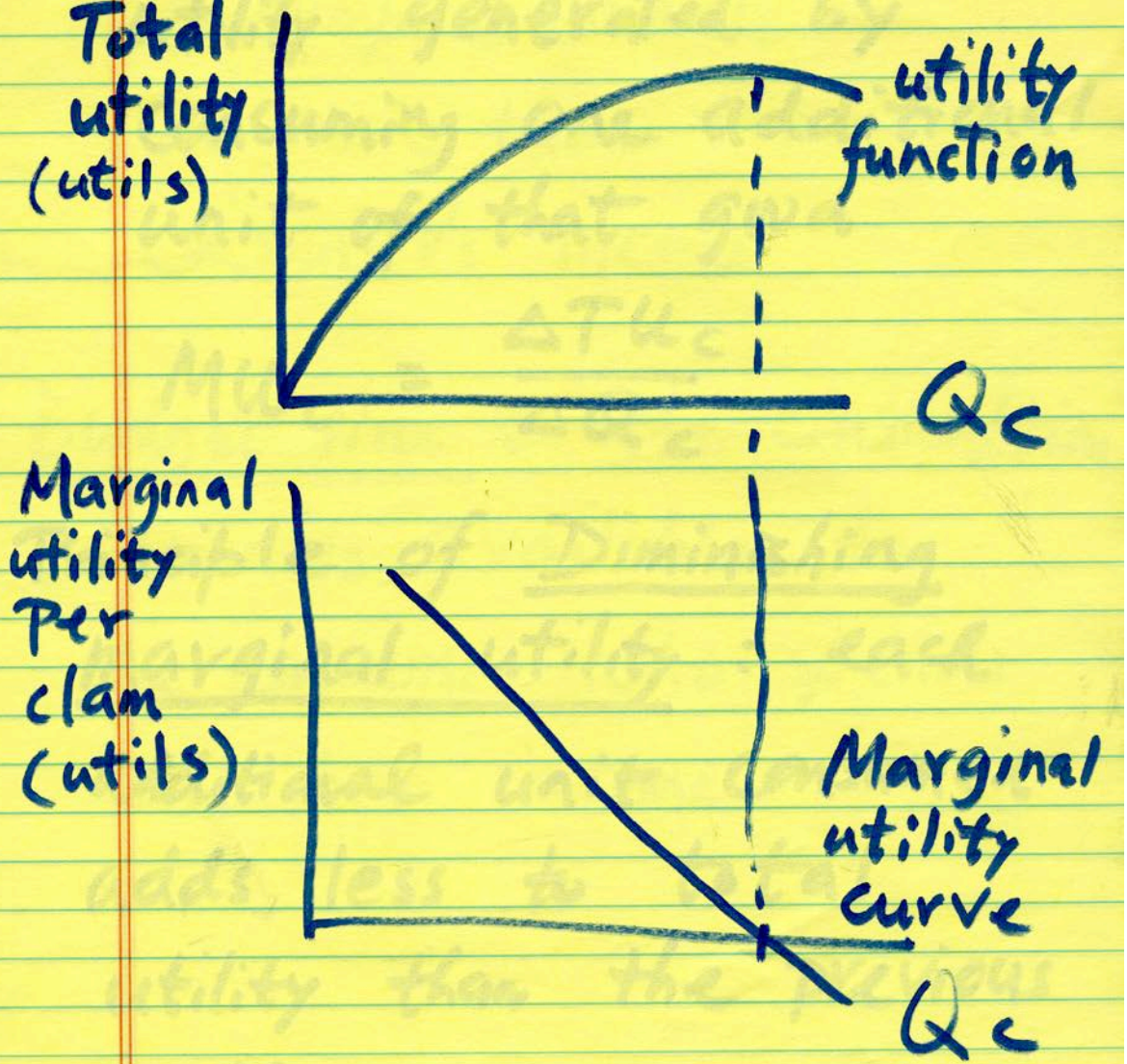
utility: a measure of the satisfaction the consumer derives from consumption of goods & services

consumption bundle: collection of all goods & services consumed by individual

utility function: total utility generated by her consumption bundle

util: unit of utility

measurable ?



Marginal utility of a good: the change in total utility generated by consuming one additional unit of that good

$$MU_c = \frac{\Delta TU_c}{\Delta Q_c}$$

Principle of <u>Diminishing marginal utility</u>: each additional unit consumed adds less to total utility than the previous unit

budget constraint: the cost of a consumer's consumption bundle be no more than the consumer's income

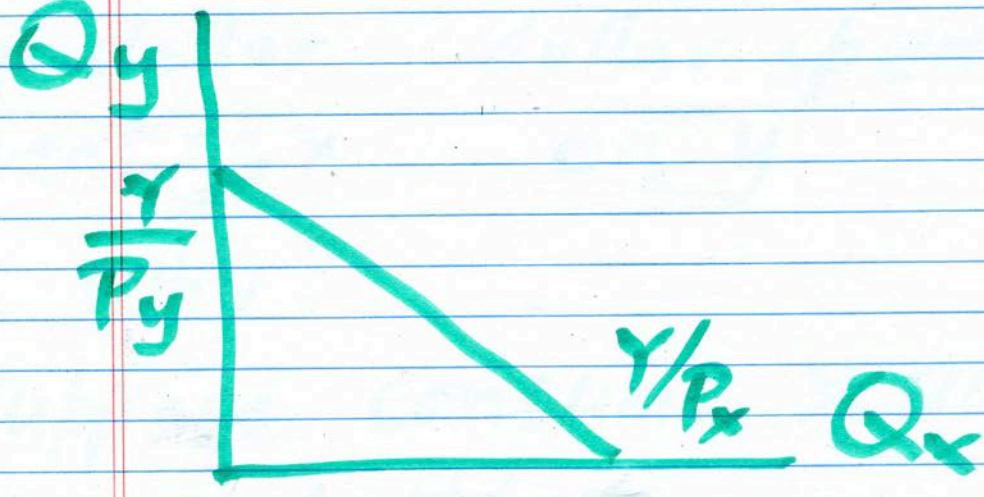
budget line: the consumption bundles available to a consumer who spends all her income

Ch 10 (cont) The Rational Consumer

Budgets and Optimal Consumption

budget constraint: the cost of a consumer's consumption bundle be no more than the consumer's income

budget line: the consumption bundles available to a consumer who spends all her income



Expenditure on y + Expenditure on x = Total income Y

Optimal Consumption Choice

$$\frac{MU_x}{P_x} = \frac{MU_y}{P_y}$$

marginal utility per dollar spent on x = marginal utility per dollar spent on y

Why?

Suppose consume x and y such that

$MU_x/P_x > MU_y/P_y$

e.g. $5 > 4$

Spend $1 less on y
Spend $1 more on x
lose 4 utils from y
gain 5 utils from x

Without increasing total expenditure or income, total utility can be increased when

$MU_x/P_x > MU_y/P_y$

so we need

$MU_x/P_x = MU_y/P_y$

Utility and Demand Curve

Substitution effect

$P_x \uparrow$ substitute away from x as x is relatively expensive

Income effect

$P_x \uparrow$ Purchasing power ↓ (particularly if x is a large share of income)

demand for normal ↓

For most goods, substitution effect most important

For some goods (e.g. housing) income effect is present

- if the good is normal
  substitutin effect reinforced by income effect $P_x \uparrow$ purchase of $x \downarrow$
- inferior goods
  income effect goes against substitution effect

Giffen Good:

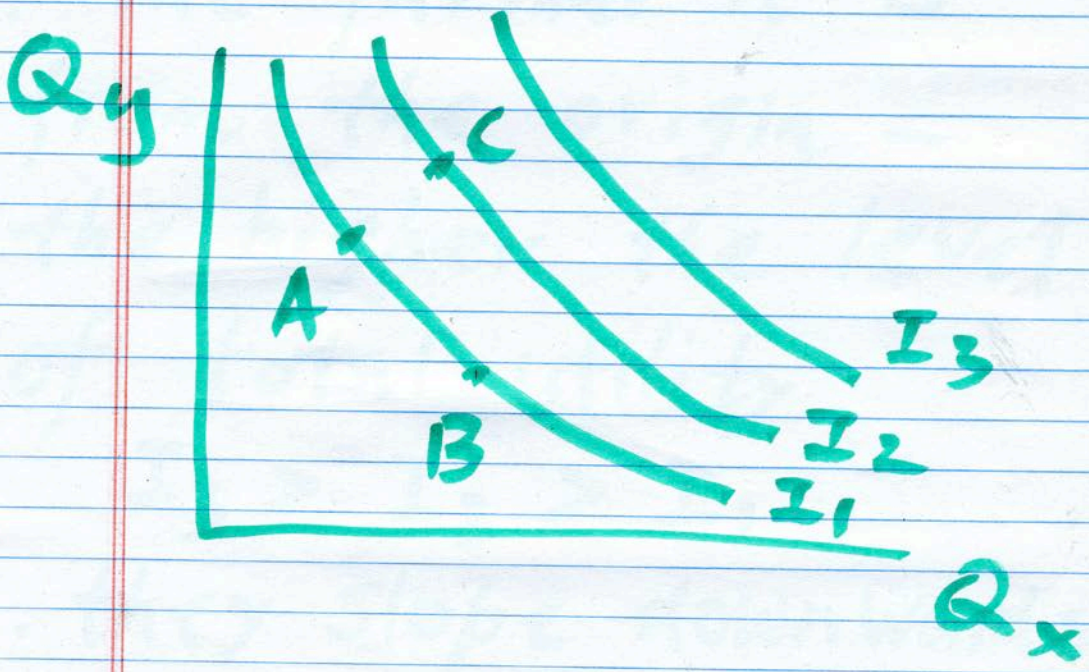
theoretically possible upward sloping D

19th century Ireland demand for potato?

Ch 10 Appendix
Consumer Preferences and Consumer Choice

An indifference curve is a line that shows all the consumption bundles that yield the same amount of total utility for a consumer

Indifference curve map is a collection of indifference curves



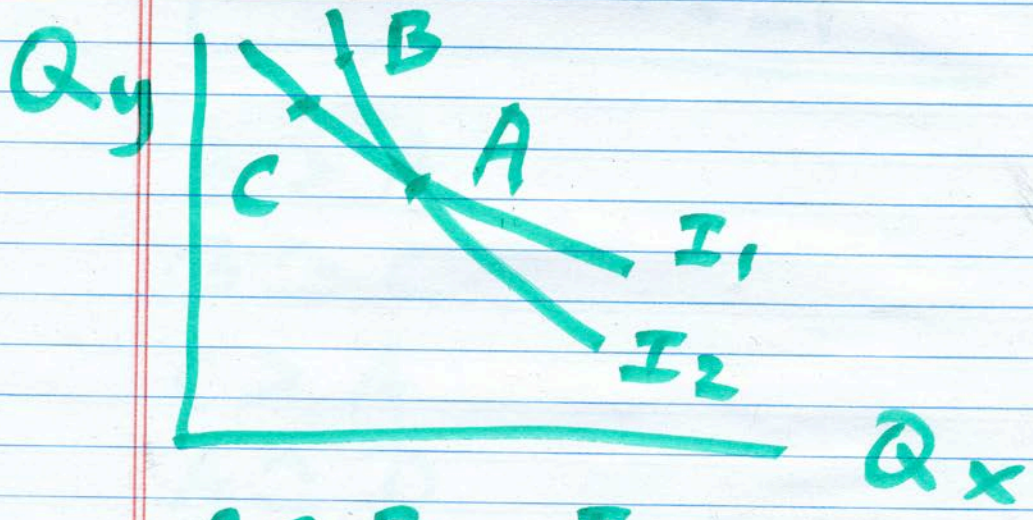
Properties of indifference curves

1. they do not cross
2. the farther it is from the origin - the higher the level of total utility

$I_3 > I_2 > I_1$

3. they slope downwards
4. they are convex - bowed in toward origin

- We now do not require utility to be measurable
- more is better
- Why can't they cross?

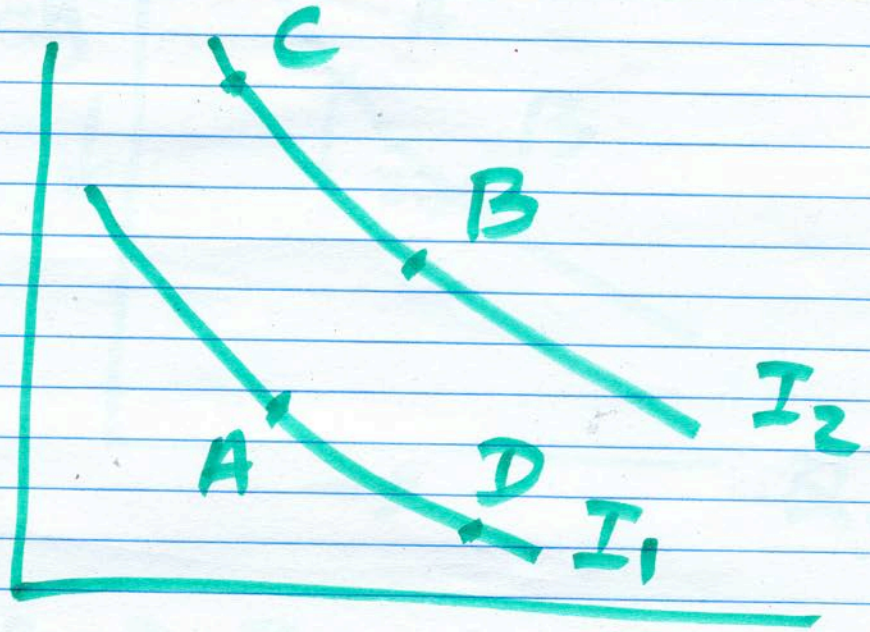


$A \simeq B$ I_2

$A \simeq C$ I_1

$B > C$ But $B \simeq C$ Contradiction

2.



$B > A$

$B \simeq C$

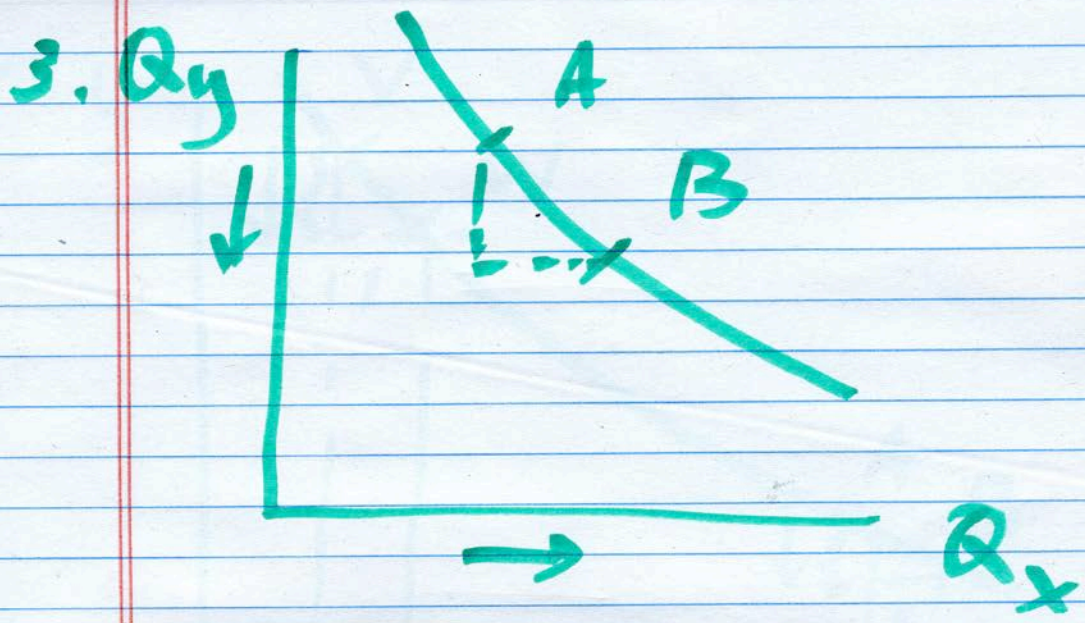
$C > A$

$A \simeq D$

$C > D$

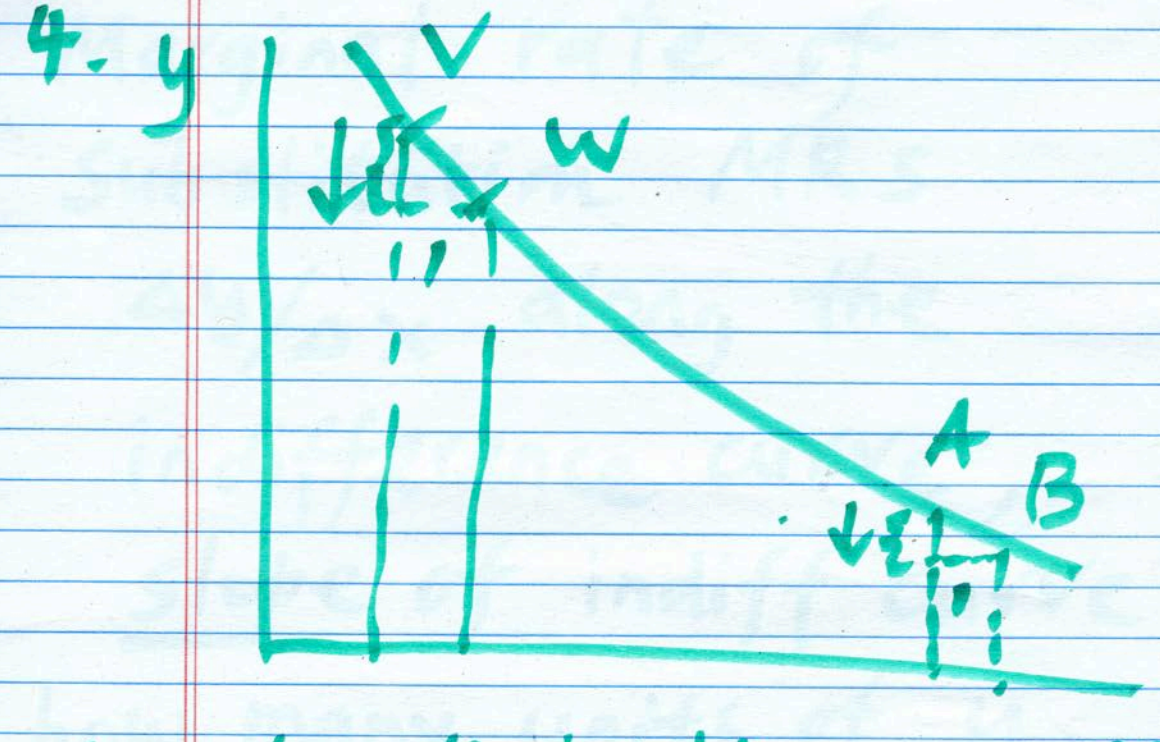
C, D arbitrary points

Anypoint on I_2 better than anypoint on I_1

3. 

A ⇒ B

give up some y to get more x to be as happy as before

4. 

due to diminishing marginal utility

at V, have a lot of y

MU$_y$ small, willing to give up a lot of y to get 1 x

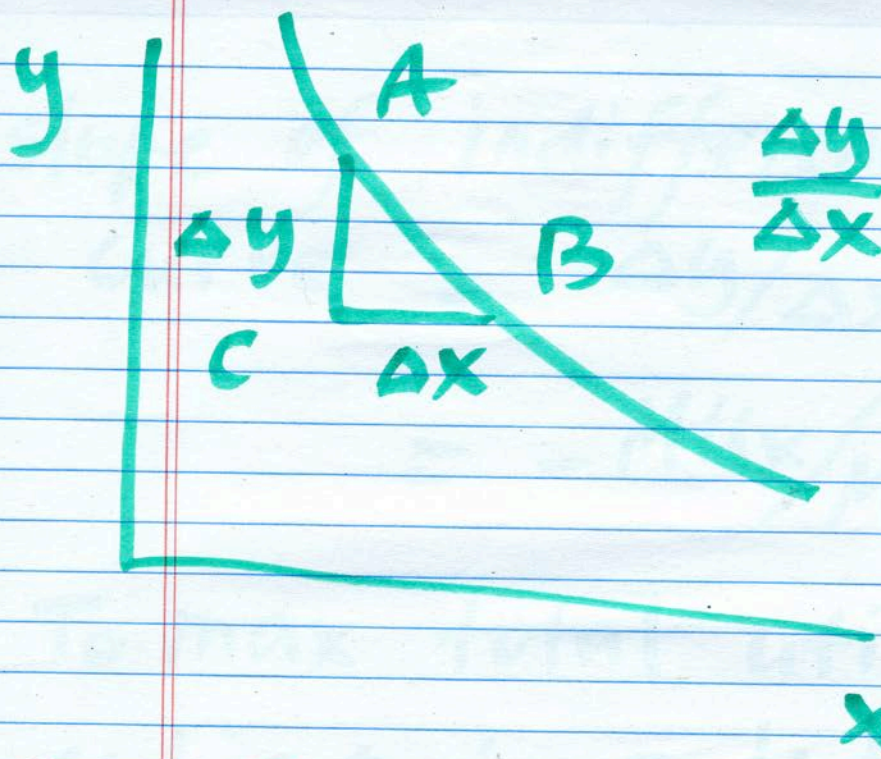
at A, only willing to give up a bit of y

Marginal rate of Substitution MRS

$\Delta y / \Delta x$ along the indifference curve,

slope of indiff curve

how many units of y you are willing to give up to get an additional unit of x so that you are as well before happy as



$\frac{\Delta y}{\Delta x}$ slope

A → C

lose $MU_y \cdot \Delta y$ in utility

C → B gain $MU_x \cdot \Delta x$

$-MU_y \cdot \Delta y = MU_x \cdot \Delta x$

$\Delta y / \Delta x = -MU_x / MU_y$

Slope of indifference curve = $\Delta y / \Delta x$

$= -MU_x / MU_y$

To max total utility subject to a budget line