

AEDE 4330 Study Guide I

Spring 2018

Lecture 1

- Static efficiency:
- Dynamic efficiency:
- Intergenerational equity:
- Intragenerational equity:

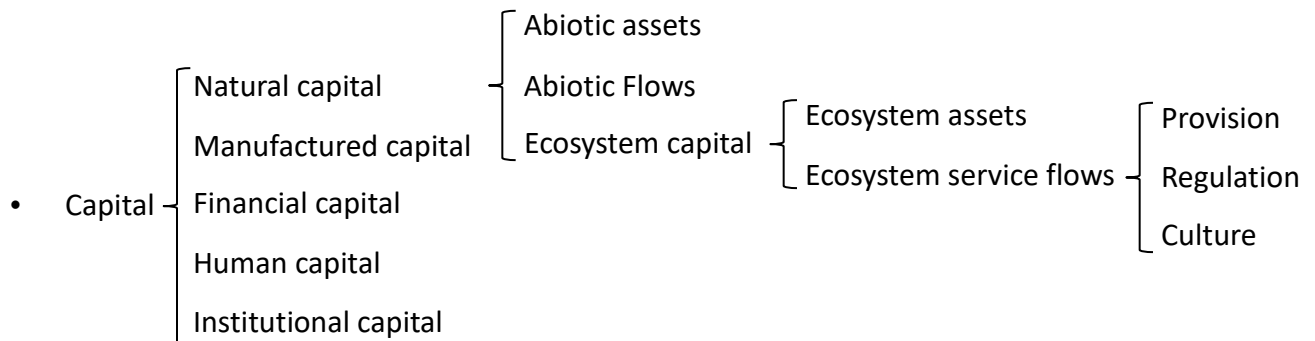
	<i>Definition</i>	<i>Assumption</i>
Weak sustainability:		
Strong sustainability:		

Lecture 2

- Environmental Kuznets Curve (EKC):



✧ Why does it look like this?



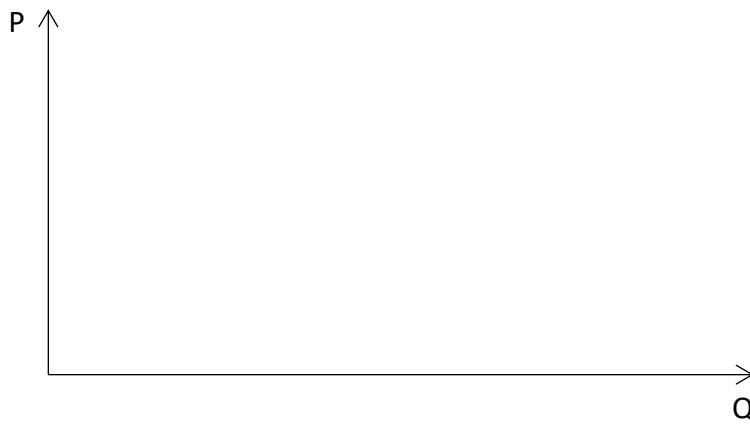
Lecture 3

- Public goods {
 - Non-rivalrous
 - Non-excludable

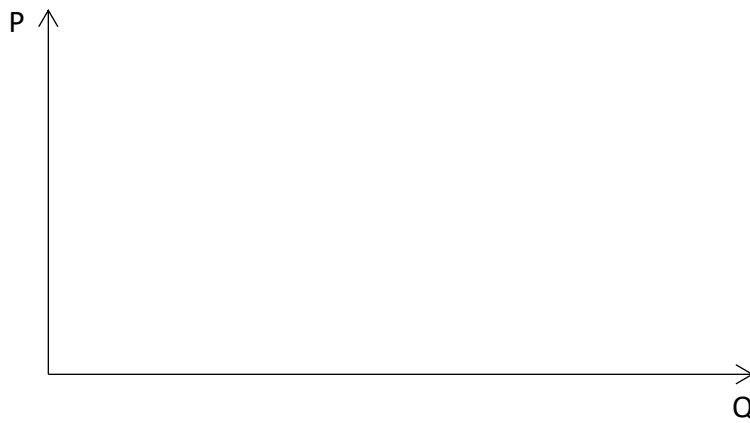
	<i>Excludable</i>	<i>Non-excludable</i>
<i>Rivalrous</i>	Private good	Common pool resource
<i>Non-rivalrous</i>	Club good	Public good

- Externalities

- {
 - Negative → Overproduction
 - Positive → Underproduction



{ TB
 { TC { Private
 Public
 Max TB - TC



{ MB
 { MC { Private
 Public
 MB = MC

✧ Conclusion? (private vs. social)

Lecture 4

- Gross domestic product (GDP)

}	Market value
	Final
	Goods and services
	In a period
- ◇ GDP = C + I + G + NX
- ◇ GDP per capital
- ◇ GDP growth
- ◇ What's wrong with GDP as a measure of human well-being?
- Material throughput

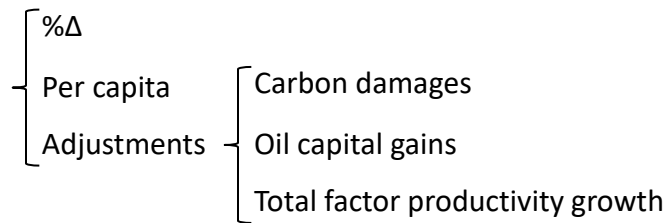
}	Physical units
	Matter and energy
	Extraction, production, use, disposal
- Material inputs = Waste outputs + Accumulation
- ◇ What's wrong with material throughput as a measure of human well-being?
- Society's productive base:

Lecture 5 & 6

- Shadow price

}	Additional unit
	Human well-being
	Today and in the future
- Shadow price = Marginal private benefit + Marginal public benefit
= Marginal market benefit + Marginal non-market benefit
- Inclusive wealth index (IWI):
$$W(t) = P_N \times NC(t) + P_M \times MC(t) + P_H \times HC(t)$$
- Social/Institutional capital: not measured
- Health capital: analyzed separately

- Adjusted IWI = $\% \Delta(\text{IWI})$ per capita + Adjustments



◇ How to analyze the sustainability of a tax policy?

Lecture 7

- Interest

◇ Where does interest come from?

$$FV_t = PV(1 + r)^t$$

- Discounting $\left\{ \begin{array}{l} \text{Economic growth} \\ \text{Positive time preference} \end{array} \right.$

➤ Discount rate = Growth rate + Time preference rate

$$PV = \frac{FV_t}{(1 + r)^t}$$

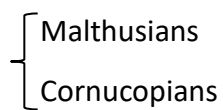
- Value of a capital stock

$$PDV = \frac{\text{Annual Value}}{r}$$

◇ Market discount rate vs. Social discount rate

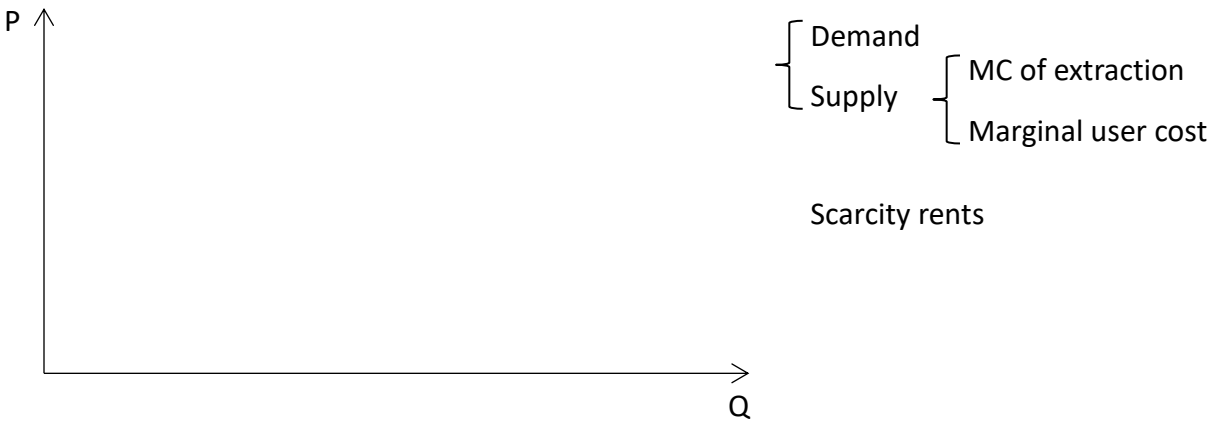
◇ The impact of a low discount rate on NC?

Lecture 8



- Price of nonrenewable resources





✧ Conclusion? (static vs. dynamic)

- Increasing scarcity over time \rightarrow Marginal user cost \uparrow \rightarrow Supply \downarrow \rightarrow Price \uparrow
- Technological innovation \rightarrow Supply \uparrow \rightarrow Price \downarrow
- Rebound effects:

