

Ch 6 - B-C A

if $B > C$ - project $W \uparrow$

$$NPV_a = \sum_{t=0}^T \frac{B_t - C_t}{(1+r)^t}$$

$$\beta = (1+r)^{-1} \text{ - discount factor}$$

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

B & C constant \$.

r - real discount rate
- no inflation

Environmental Impact Statement
Assessment
EIS EIA

$$\rightarrow \Gamma = g + \delta$$

real rate of economic growth

[opportunity cost of funds in project]

social rate of time preference

$$0.03 < \Gamma < 0.10$$

sensitivity analysis
use different values of Γ in NPV

measure B + C ?

B → not traded in market
so reliable price data

- cleaner air - regulation on
emissions

B: reduce mortality
" illness
improves visibility]

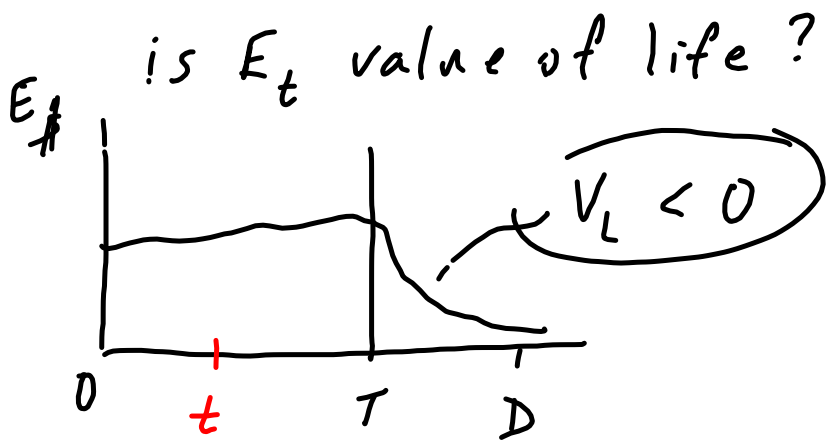
values of B → complementary
markets → shadow prices

Value of life Value of statistical
life life VSL

value reduction in
probability
of death



$$DFE = \sum_{t=d}^T \frac{E_t}{(1+r)^t} \quad \begin{matrix} T? \\ E_t? \end{matrix}$$



Value of life DFE \rightarrow \$1 mill

D₀D - use Death Benefit \$450k

VSL - averting behavior
 \$ spent to reduce
 risk of death

\$X reduces prob of death
 by 0.001

mult. \$X by 1000 \rightarrow $VSL = 1000 \cdot \$X$

$VSL \approx \$6 \text{ million} \times$

age? lower VSL to reflect age?
No

Benefit \rightarrow # lives saved \times \$6 mill
aggregated Benefit

Illness \rightarrow averting spending
 \rightarrow days lost (productivity)

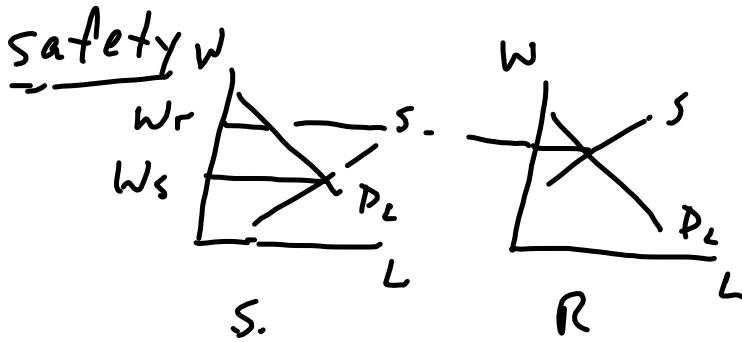
Visibility ? - complementary
markets
estimated from housing values

Hedonic Housing Price

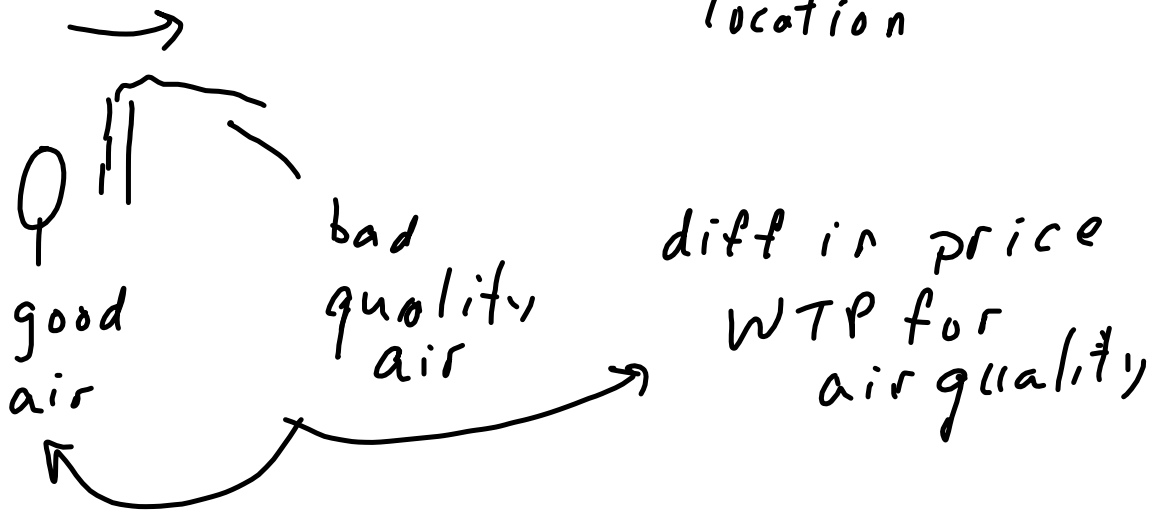
Hedonic wage

$$W = f(S, L, a, \dots)$$

value on Location - WTP for
location - lower wage



H Price = f (Size, garage, bath,
beds, ↗ -view,)
location



Benefits

- reduced mortality
VSL
- reduced illness
productivity
- WTP for higher air
quality