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ECON 3316

Lecture 21:
Asymmetric Information

Why Markets Fail

- Under our assumptions, competitive markets are efficient

Why markets fail:
- Market power
- Incomplete information
- Externalities
- Public goods

Market failure - prices fail to provide proper signals to consumers & producers

Information asymmetry
- one market participant knows more than another

Uncertainty Example:

Job A) $P(2000) = 0.5$, $P(1000) = 0.5$

Job B) $P(1510) = 0.99$, $P(510) = 0.01$

Utility of income $U = \ln(I)$

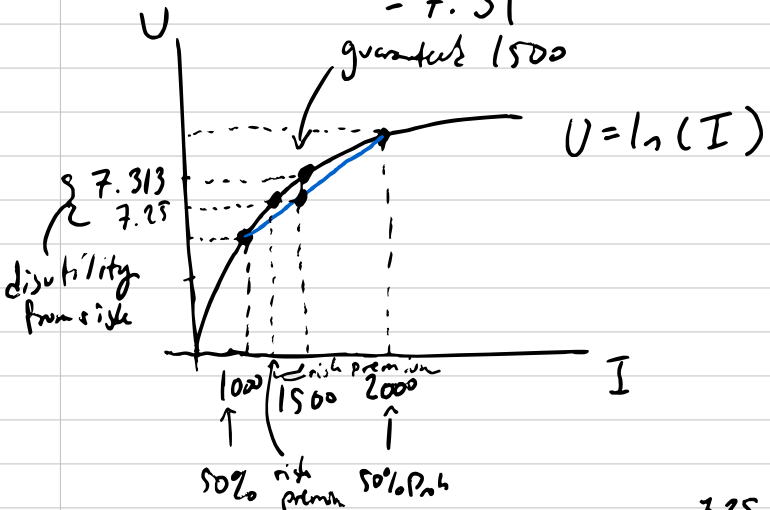
$E(I_A) = 1500$, $E(I_B) = 1500$

$$U(I) = \ln(I)$$

$$E(U) = \sum_{\text{all } I} U(I)\,P(I)$$

Job A: $E(U) = \ln(1000)\cdot 0.5 + \ln(2000)\cdot 0.5$
$= 7.25$

Job B: $E(U) = \ln(1510)\cdot 0.99 + \ln(510)\cdot 0.01$
$= 7.31$

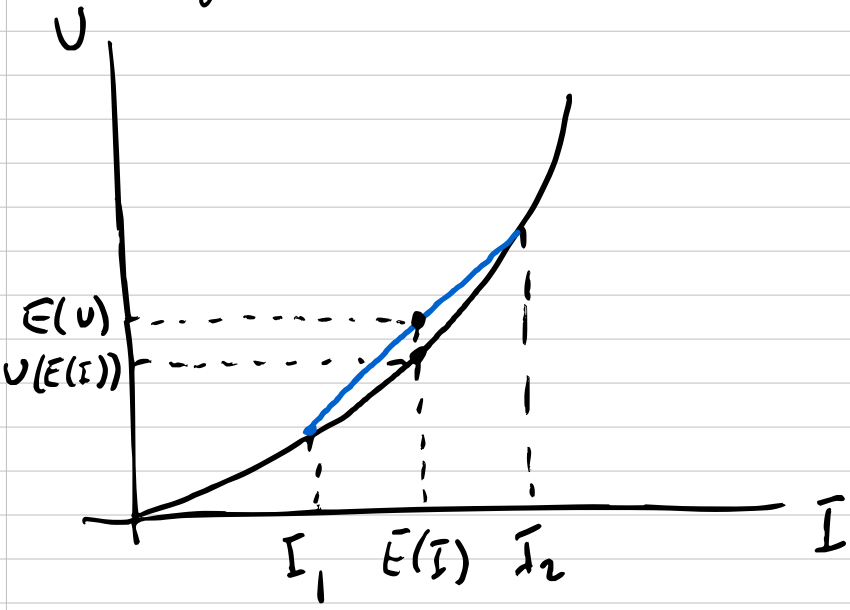


Prob. income, guaranteed $U = E(U) \Rightarrow e^{7.25} = 1408.10$

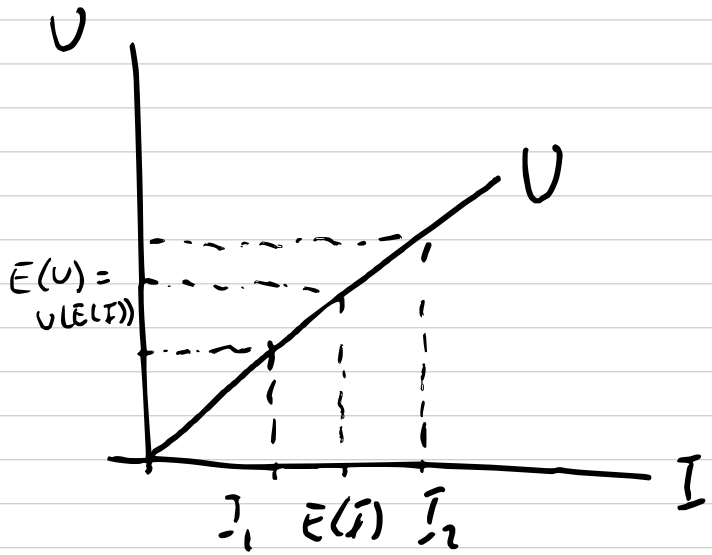
Risk Premium: how much (expected) income are you willing to give up to remove your risk

Risk Premium $= E(I) - 1408.10$
$= 1500 - 1408.10$
$= 91.9$

Risk Loving



Risk Neutral



Example

Company	Selling	Bonus	Prob of Bonus
Pagthorpe	110	20	0.5
BT	90	40	0.5
IB	110	—	—

What do you pick? (You're risk averse)

$E(I_1) = 0.5 \cdot 110 + 0.5 \cdot 130$
$= 110$

$E(I_2) = 0.5 \cdot 90 + 0.5 \cdot 130$
$= 110$

$E(I_3) = 110$

Choose index bonus b/c variance is lowest even though we don't have a spectator
$U(I)$

Adverse Selection & Moral Hazard

Asymmetric Info - buyer & seller have different info

Ex. used car market
- seller knows more than prospective buyer

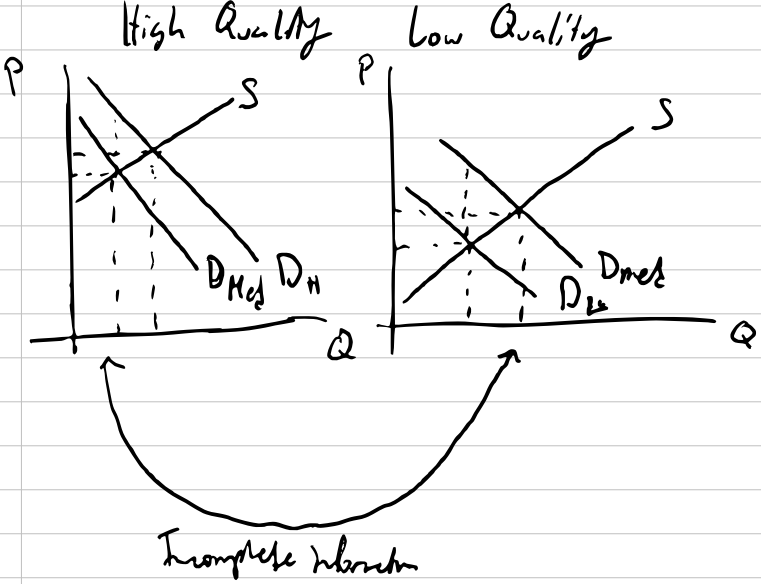
Suppose we have high quality used cars & low quality

Under full information, we know which is which
- 2 markets

Asymmetric information
- buyer might view all cars as "medium"
- fewer high quality & more low quality sold
- Consumer expected value falls
- Eventually only bad cars are sold

Adverse Selection (the lemons problem)
- low quality goods drive high quality out of the market

Example:



Implications

- Some sellers value high-quality cars less than buyers
- Asymmetric info prevents trade from occurring

Adverse selection

- different quality, same price
- too much low quality product and too little high-quality

Moral Hazard

- you act differently when unobserved

Moral Hazard and Monitoring

- ex. car insurance
- most insurance companies don't see all your driving, just accidents
- telematic devices monitor, so moral hazard is decreased

Enforcement Mechanisms

- Reputation - reviews
- Standardization - quality guidelines

Signaling

- sellers send signals to buyers to give them information
  - for a signal to be strong it should be easier for high quality products

- Weak signals can be inversely-strong