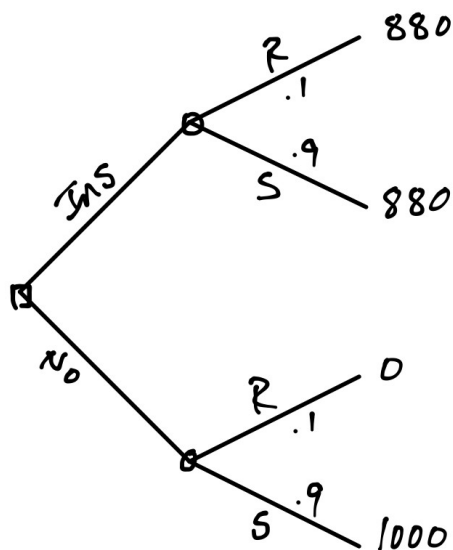


E: Risk aversion, part 2

Renter's insurance example from part 1

Initial cash: \$1000
 States: R = robbed
 S = safe
 Risk of R: 10%
 Insurance premium: \$120
 Ex post utility: $u = c_i^{0.5}$



EV with and without insurance:

$$EV_{INS} = 1000 - 120 = 880$$

$$EV_{NO} = 0.9 * 1000 + 0.1 * 0 = 900$$

- Risk neutral agent would **not** buy

Expected utility (**EU**) with and without insurance:

$$EU_{INS} = 29.7$$

No

$$EU_{No} = 28.5$$

- Risk averse agent **would** buy

Extending the analysis:

Certainty equivalent (CE) of risk without insurance:

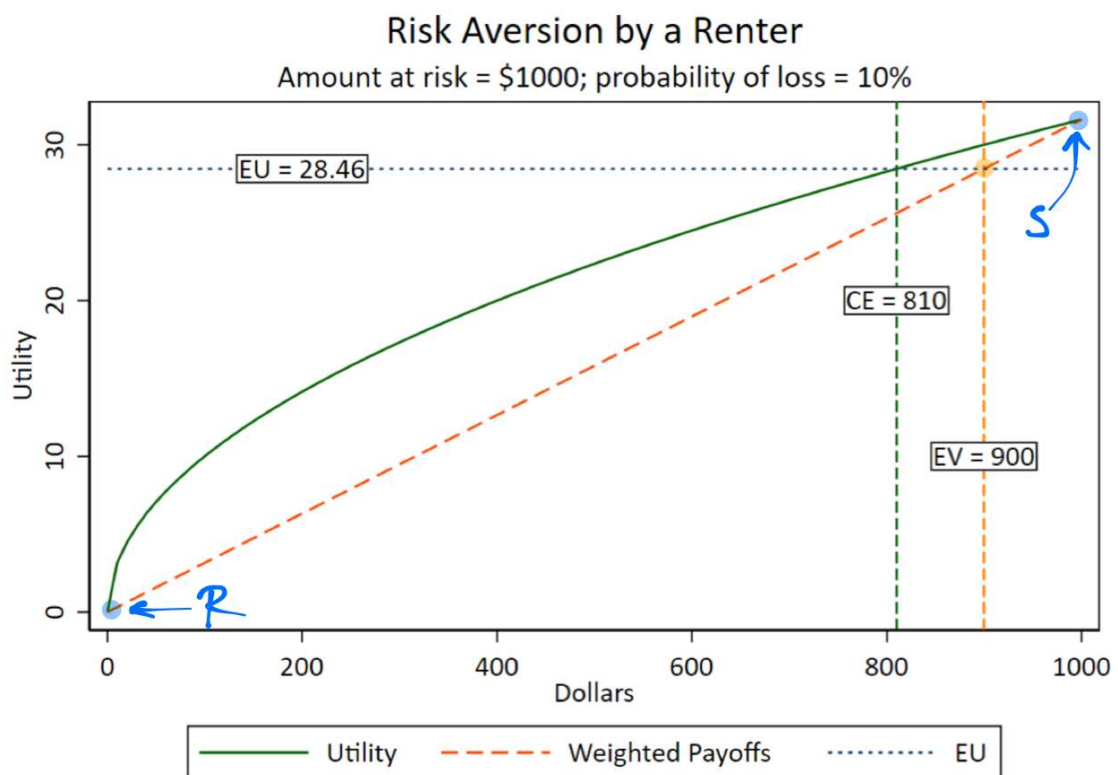
$$1 * (CE)^{0.5} = EU_{No}$$

$$CE^{0.5} = 28.5$$

$$CE = 810$$

- EV of risk is \$900
- Renter would be equally happy with \$810 and no risk
- Loss of \$900 - \$810 = \$90 due to risk bearing

Graphing relationship between EV and EU:



Gap between EV and CE depends on curvature:

Larger: when u is more curved

Smaller: when u is less curved and closer to linear

- Larger curvature:
Larger cost of risk bearing

Difference between EV and CE:

Potential gains from risk-sharing between agents

- Risk **averse** agents **give up some of the EV**
- Risk **neutral** agents **take on some of the risk**