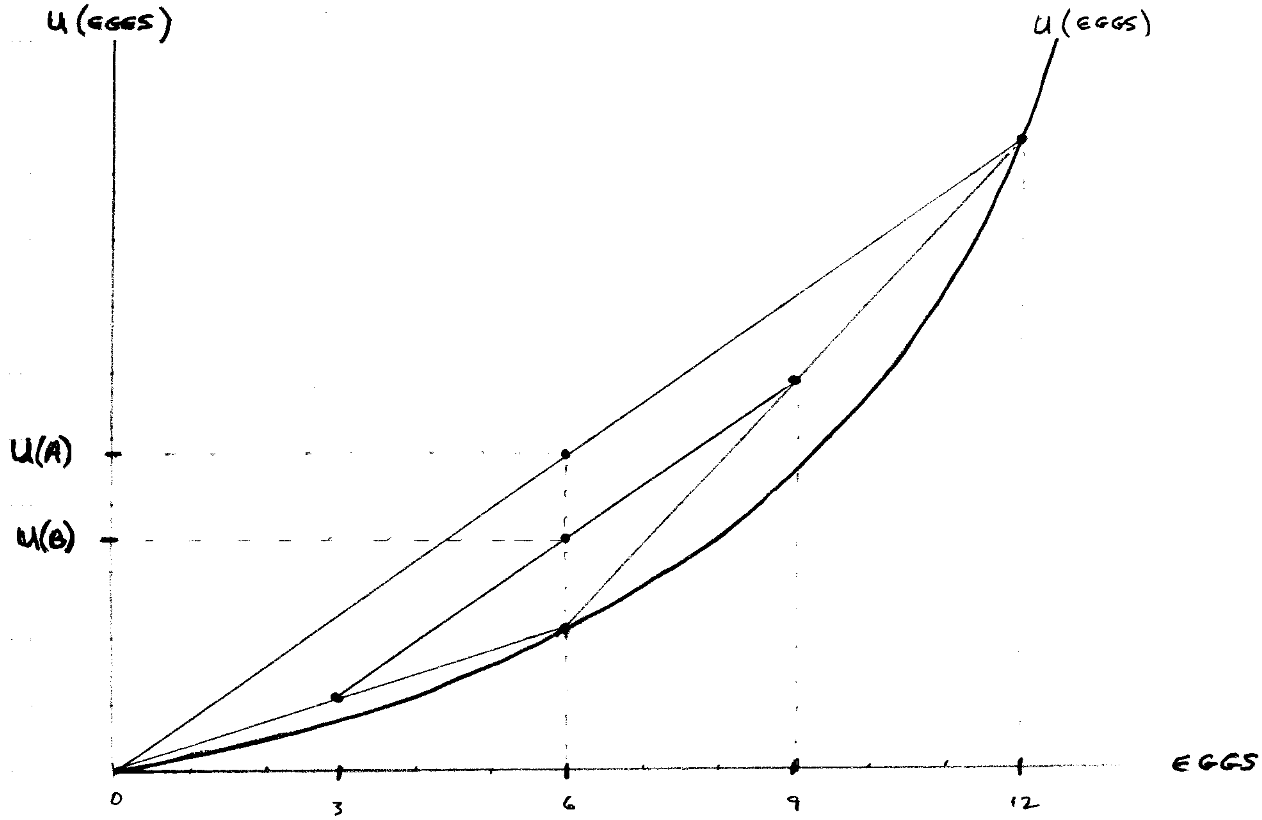
ECO 601 Problem Set #6 KEY Fall 2002

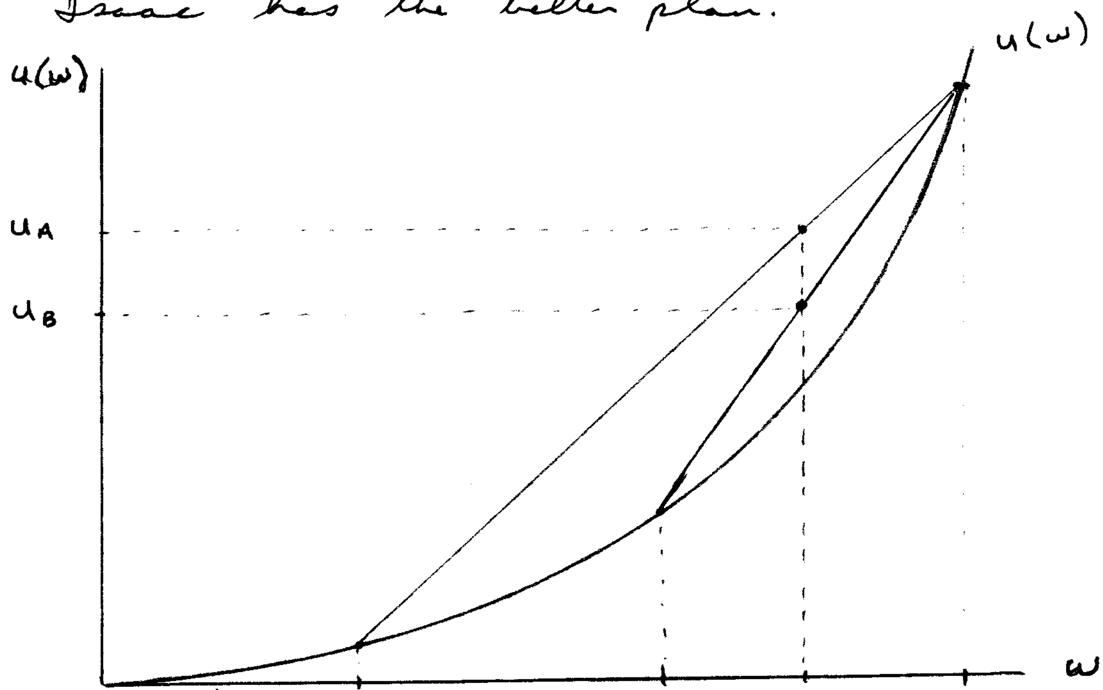
1. Both strategies have an expected return of six eggs making it home intact. The strategy of putting all the eggs in one basket, however, has a greater variance than the strategy of splitting the eggs between Jack and Jill. If Jack and Jill are risk seekers, they will prefer the strategy that has the greater variance. So, <u>true</u>, they should put all their eggs in one basket.



U(A) = expected utility from gamble: (0 eggs, 12 eggs; p = 1/2)

U(B) = expected utility from gamble: (0 eggs w/ p = 1/4, 6 eggs w/ p = 1/2, 12 eggs w/ p = 1/4)

2. Risk averters will be more likely to feed the parking meter and park legally. Risk seekers, however, will be more likely to not pay the parking meter and park illegally. Being risk seekers, they will prefer the gamble with the greater variance, if the expected return is held constant. Theresa Crosby's plan to double the penalty but keep the probability of detection the same will increase the appeal of parking illegally to risk seekers and probably lead to an increase in illegal parking. So Scott Isaac has the better plan.



u_A = expected utility associated with increased penalty

u_B = expected utility associated with increased probability

3. $u(w) = \ln(w)$

(a) expected loss = $(.25)(20{,}000)$ = \$5000

(b) $u(95{,}000) = \ln(95000) = 11.461632$

if she buys insurance and is assured of $W = \$95{,}000$ no matter what happens.

If she does not buy insurance her expected utility is: $E(u) = .25 \ln(80{,}000) + .75 \ln(100{,}000)$

$E(u) = 11.45714$

She is better off buying insurance.

(c) The certainty equivalent of the gamble when she doesn't buy insurance is:

$\ln(w) = 11.45714$, or $w = \$94{,}574.16$

so she would be willing to pay up to \$5425.84 for car insurance.

4. (a) $E(u) = (.10)(40{,}000)^{1/2} + (.90)(1{,}000{,}000)^{1/2} = 920$

(b) $u(1{,}000{,}000 - p) = 920$, in other words, the expected utility from the gamble is 920, so subtracting the premium from \$1,000,000 gives the certainty equivalent.

(c) $(1{,}000{,}000 - p)^{1/2} = 920$

$\$1{,}000{,}000 - p = \$846{,}400$

$p = \$153{,}600$