Assignment 2

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Abstract

This document shows a homework assignment for the seminar Economics and Psychology of Risk and Time.

1 Exercise 1

Calculate the certainty equivalent of the prospect (0.2,40;0.6,50;0.2,30), under:
a) Expected utility theory with the utility function $u(x) = \frac{x}{10}$, with total wealth=0.
b) Rank dependent utility with the utility function $u(x) = \frac{x}{10}$ and $w(p) = p^2$, with total wealth=0.

1.1 Answer Exercise 1a

The expected value of the prospect is EV=0.2*40+0.6*50+0.2*30=44 and the utility given the formula $U(x) = \sum p * u$ is 4.4.
The certainty equivalent (CE) is calculated by determining the value of x for which an individual is indifferent of receiving the prospect or a certain amount. In this case, since utility is given by $U(x) = \frac{x}{10}$ the CE is calculated as follows:

$$U(x) = \frac{x}{10} = 4.4$$

$$x = 4.4 * 10 = 44 = CE$$

1.2 Answer Exercise 1b

The rank dependent utility calculated using $U(x) = \sum \pi * u$ and $w(p) = p^2$ is as follows: $0.2^2 * 4 + (0.8^2 - 0.2^2) * 5 + (1 - 0.8^2) * 3 = 4.24$.
Given that the utility is calculated as $u(x) = 0.1 * x$, so the amount for which an individual would be indifferent between the prospect or a certain amount would be

$$CE = \frac{4.24}{0.1} = 42.2$$

2 Graph

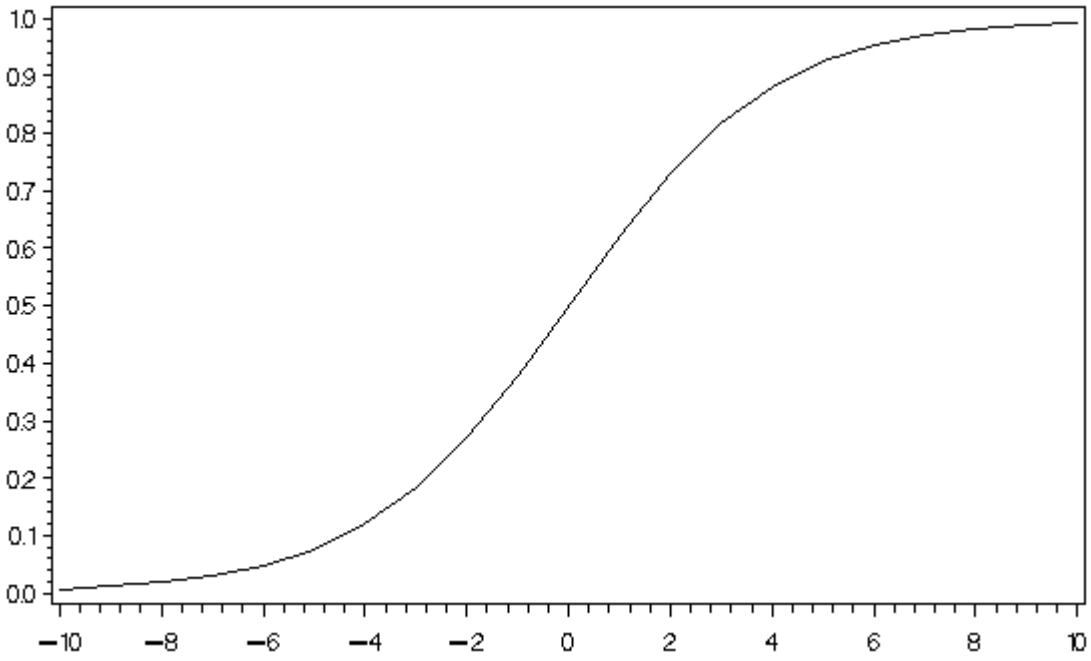

Figure 1: Regression