Risk Aversion and Wealth

Arrow [1] considers the relationship between risk aversion and wealth.

Absolute Risk Aversion

Arrow argues that for a typical individual absolute risk aversion *falls* as wealth rises: the willingness to take a risk of a given absolute size *increases* as wealth rises.

Quadratic Utility

According to Arrow, quadratic utility is unsatisfactory because the absolute risk aversion *increases* as wealth rises.

(However this objection does not apply to the small risks formulation, in which utility is locally quadratic but is not globally quadratic.)

Relative Risk Aversion

It is unclear whether relative risk aversion rises or falls as wealth rises.

Proverbially the rich are conservative "coupon-clippers," who play it safe by investing in bonds.

On the other hand, many rich people have become wealthy from a high return on risky stockholdings.

Risk Aversion Causes Wealth?

Individuals with low risk aversion will tend to take chances. Some will win, some will lose. Consequently, the rich and the poor should tend to have low risk aversion.

Conversely, individuals with high risk aversion will tend to play it safe. Consequently the middle class will tend to have high risk aversion.

Even if these conjectures are true, however, it does not follow that any particular individual has low risk aversion at low and high wealth and high risk aversion at medium wealth.

Constant Absolute Risk Aversion

$$u(w) = -\mathrm{e}^{-aw}, a > 0.$$

Constant Relative Risk Aversion

$$u\left(w\right) = \begin{cases} \frac{w^{1-\alpha}}{1-\alpha} & \text{for } \alpha \neq 1 \\ \ln w & \text{for } \alpha = 1. \end{cases}$$

References

[1] Kenneth J. Arrow. The theory of risk aversion. In *Individual Choice under Certainty and Uncertainty, collected papers of Kenneth J. Arrow*, pages 147–171. Harvard University Press, Cambridge, MA, 1984. HD30.23A74 1984.