**ECOM90024 – Assignment 2 – Question 3**

**This question aims to deepen your understanding of the concepts of risk aversion and make you more aware of your own attitude toward risk. Consider two scenarios:**

1. **Your current wealth is $100. You need to pay $50 to participate in a risky game. This game would allow you to win a prize of $500 with probability 0.15 and nothing with probability 0.85.**
2. **Your current wealth is $1000. You need to pay $500 to participate in a risky game. This game would allow you to win a prize of $5000 with probability 0.15 and nothing with probability 0.85.**

Scenario 1:

* Current wealth = $100
* Cost to play = $50
* Expected value = (0.15 \* 500) + (0.85 \* 0) = 75
* Net expected gain = 75 – 50 = 25

Scenario 2:

* Current wealth = $1000
* Cost to play = $500
* Expected value = (0.15 \* 5000) + (0.85 \* 0) = 750
* Net expected gain = 750 – 500 = 250

Answer the following questions:

1. **Are you going to play the game in scenario 1)? Are you going to play the game in scenario 2)? Based on your decisions, comment on your degree of risk aversion in terms of absolute risk aversion (ARA) and relative risk aversion (RRA). That is, do you think you have increasing, decreasing or constant ARA, and increasing or decreasing RRA?**

We would be willing to play the first gamble but not the second. The key conclusion which can be drawn from this is that we are risk-averse, and that we have an increasing ARA and decreasing RRA. This implies we are less willing to take large risks relative to our wealth as it increases.

More specifically:

* Increasing ARA: playing the first gamble but not the second implies ARA increases with wealth we we’re less willing to risk a larger sum even when the relative proportion of wealth at stake is unchanged.
* Decreasing relative risk aversion: in both gambles the same proportion of wealth is at risk (50%), but we don’t want to take the second gamble means our risk aversion relative to our wealth decreases as our wealth increases.

1. **Choose a utility function that may describe your attitude toward risk (refer to Topic3 slides for some examples of utility function, but you are not restricted to choose from this list), and calculate your expected utilities from playing the game or staying away from it in both scenarios. Are your decisions in (a) justifiable by this utility function? If not, try different value(s) for parameter(s) in your utility function or try a different utility function until the utility function you choose to work with implies the decisions you have chosen in part (a). By doing this exercise, you somehow uncover your own utility function from your decisions.**