Assignment on HDM

In a famous experiment from 1981, Amos Tversky and Daniel Kahneman investigated how the framing (how the choices are stated) of a solution to a problem affect people's judgements. The following problem was presented:

Imagine that your country is preparing for the outbreak of an unusual foreign disease, which is expected to kill 600 people. Two alternative programs to combat the disease are proposed. Assume that the exact scientific estimates of the consequences of the programs are as follows:

If Program A is adopted, 200 people will be saved.
If Program B is adopted, there is a 1/3 probability that 600 people will be saved, and a 2/3 probability that no people will be saved.

Which of the two programs would you favor?

Now consider the following additional proposals for combating the same disease:

If Program C is adopted, 400 people will die.
If Program D is adopted, there is a 1/3 probability that nobody will die, and a 2/3 probability that 600 people will die.

A first group of students had to choose between Program A and B. Program A was chosen by 72 percent of the students, and Program B was chosen by 28 percent. A second group of students had to choose between Program C and D. In this context, Program C was chosen by 22 percent and Program D was chosen by 78 percent of the students. Now, why did the students from the two groups choose so different from each other? Note that the number of dead and the probabilities for Programs A and B are exact the same as for Programs C and D. The only difference is how the problem is framed! The choice of Program A can be regarded as a risk-aversion strategy, but Program D represents a risk-taking strategy. Apparently, something in the framing of the solution makes people change strategy.

Work together in a group of 3-5 people. Replicate the experiment by Tversky and Kahneman. One problem with the result is that we actually don't know if the shift in strategy depends on the students or the task. As a solution to this, find two different problems on your own and rotate the framing of the risk-aversive and risk-taking strategies so that you eliminate the effect of the participating subjects. For example, use the application domains that you are learning about in the course as an example for the assignment. You can express the threats in terms of dead people, production losses, financial losses, estimated decreases in trust from the public or any other important parameter. Present the problem for two groups of students, 12 subjects in each group and make sure the groups are homogenous in all relevant aspects. Calculate and analyze the results – did you get the same result as Tversky and Kahneman? Explain your results in the assignment report (see instructions below).

Experimental design

One critique one may have on the result of the experiment by Kahneman & Tversky is that they didn't control the effect of the participating subjects. Perhaps the result was an effect of the two groups being different? You should design the experiment in such a way that you can control this effect. This means you have to introduce a second problem to the students participating in the experiment. By having group 1 (12 persons) replying on version A-B for the first problem, and version C-D for the second problem, and group 2 (12 other persons) replying the other way around, you can control the effect of the participating subjects.

How to report the assignment

Work together in the group. Conduct the experiment according to the instructions above (experimental design). Write a report according to the instructions below and upload it to SP.

1. Introduction - no more than half a page, stating the problem by referring to relevant literature.
2. Method - no more than one page, explaining your experimental design, the problems you have chosen for the subjects, and how the different "framings" look like.
3. Results - no more than one and a half page, with a table and/or figure showing the results in terms of percentages.
4. Discussion and conclusion - no more than half a page, with your own interpretation of the results.

This is a graded assignment (U, 3, 4, 5).