

Supplementary material for Risk aversion in the value of information analysis: application to lake management

S1: Relationship of VOI and risk aversion with power utility function

In addition to the results concerning an exponential utility function, we studied the relationship of VOI and risk aversion when the decision-maker has a power utility function. Figure 1 shows the value of perfect and imperfect information as a function of risk aversion function and CE. The parameter α is varied from 0.01 to 1, that is, the risk aversion function $R(v) = 1 - \alpha$ is varied from 0 to 0.99 (primary horizontal axis), $R(v) = 0$ responding a risk neutral decision-maker. The CE is varied according to the value of the risk aversion function (secondary horizontal axis). Now, the VOI is depending on the decision-maker's initial wealth and it is set to EUR 1000 per hectare. This is selected because it represents the value of another lake having high or good ecological status. Compared with the results of a decision-maker with an exponential utility function, the overall patterns seem quite similar. However, there are no extreme value points for $\text{VOI}(x)$ and $\text{VOI}(y)$ when the risk aversion increases.

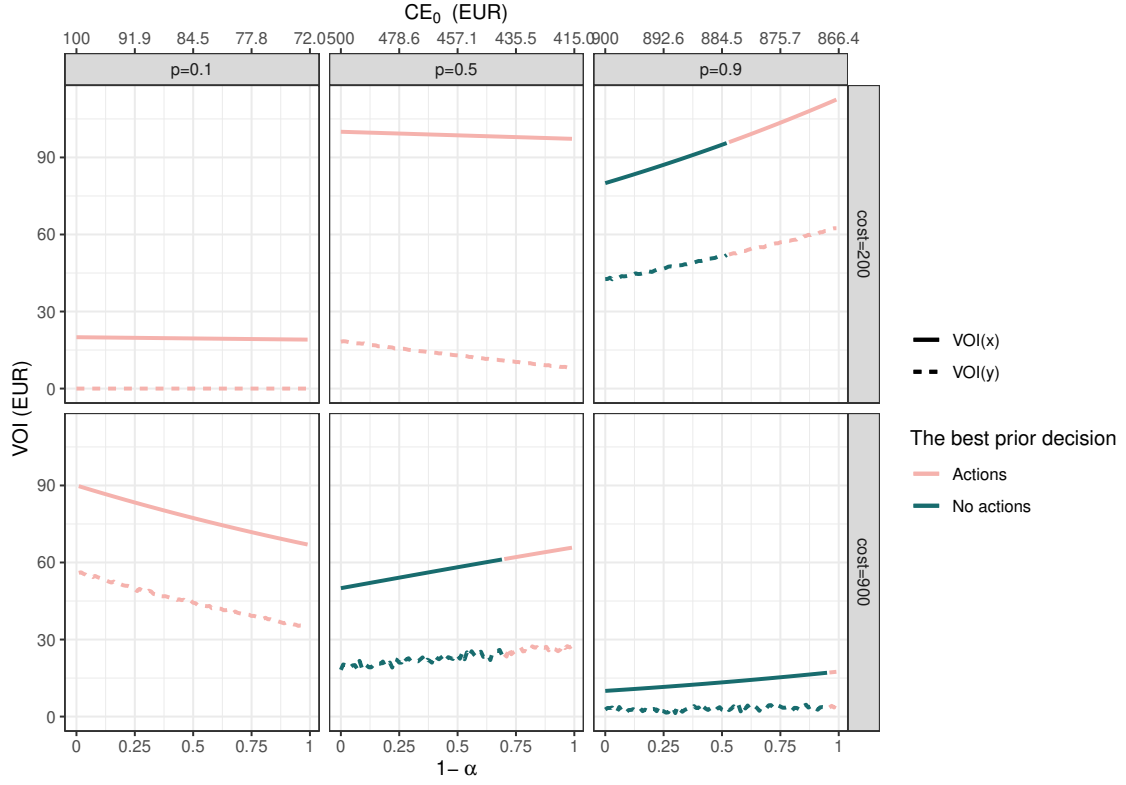


Figure 1: Value of perfect and imperfect information as a function of the relative risk aversion function $R(v) = 1 - \alpha$ (primary horizontal axis) and CE_0 (secondary horizontal axis), when using a power utility function. VOI is calculated using different values of the prior probability $p(x = x_1)$ and the cost of management action. The decision about lake managements (color coding) between two alternatives (actions/no actions) is based on the prior information only.