

Accepted Manuscript

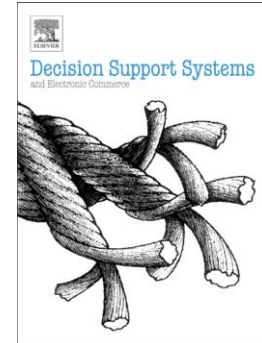
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PII: S0167-9236(18)30049-6
DOI: doi:[10.1016/j.dss.2018.03.003](https://doi.org/10.1016/j.dss.2018.03.003)
Reference: DECSUP 12938

To appear in: *Decision Support Systems*

Received date: 5 August 2017
Revised date: 8 March 2018
Accepted date: 9 March 2018



Please cite this article as: Mercedes Boncompte Pons, The expected value of perfect information in unrepeatable decision-making, *Decision Support Systems* (2018), doi:[10.1016/j.dss.2018.03.003](https://doi.org/10.1016/j.dss.2018.03.003)

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The expected value of perfect information in unrepeatable decision-making

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Abstract

This paper reflects on the concept of the “Expected Value of Perfect Information” (*EVPI*) and the procedure used to determine it. It is widely accepted that this value is the difference between the expected value when we have perfect information and the best expected value provided by alternatives. However, this difference often results in values that no rational decision-maker would accept. Here, we overcome this difficulty by defining the “Value of Perfect Information for the Problem” (*VPIP*) where we consider not only the price of perfect information (*EVPI*) but also two additional parameters: the “Loss to be Avoided” and “The Most Favourable Payoff in the Worst Scenario”. In this way, we are able to obtain a more accurate value of the amount a decision-maker might be willing to pay for perfect information. We also seek to show that the indiscriminate employment of probability theory, based by definition on the repetition of the experiment, can be misleading in the case of decisions which, owing to the very nature of the problem, are unrepeatable.

Keywords: Expected Value of Perfect Information, Decision Theory, Probability Theory, Opportunity Cost, Risk Aversion, Unrepeatable Decision

1. Introduction

The “Expected Value of Perfect Information” (*EVPI*) was defined by Szaniawski in 1967 as “the highest price the decision-maker would be prepared to pay for perfect information”¹. The study of perfect information and the amount a decision-maker might be willing to pay for it was subsequently developed on the basis of this article. Szaniawski only discusses finite decision problems where both the set of alternatives and

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¹Szaniawski (1967), p. 412

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