



ANALYSYS OF THE DECISION-MAIKING PROCESS IN RISK CIRCUMSTANCES

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ABSTRACT

The subject of the present research is theoretical analysis of the decision-making process in agricultural firms in risk circumstances. The aims of the scientific paper are to be analyzed main theoretical achievements and methods about decision-making process. The methods which have been used for the paper are examination of statistical information, research and analysis of literature, observation and expert evaluation.

Key words: management decisions, risk

INTRODUCTION

In the current global economic and financial crisis it is very important the role of the adequate, timely and pragmatic management decisions in any business organization. Qualitative management decisions can determine the outcomes achieved by firms, as well as to minimize the impact of adverse external economic conditions. In the period 2007-2013 the agricultural business in Bulgaria is mainly influenced by the country's membership in the EU, in particular the Common Agricultural Policy (CAP) of the community. Significant proportion of the farms are planning, organizing and structure their activities mainly according by CAP. In today's economic world, however, is not only necessary to follow the general trends, but also to be competitive and sustainable enough to variable market conditions. Here, again highlighting the role of the decisions made in business organizations and their significance.

This paper provides a brief analysis of the major theoretical approaches, methods and criteria for decision making process under conditions of risk

and uncertainty. The "decision tree" method will be analyzed as well as some of the main theoretical aspects regarding the criteria for decision-making in a risk environment.

The objectives of the research work is to examine theoretical aspects and methods of decision-making under conditions of risk and uncertainty, and to make a brief analysis of their application in practice in order to achieve maximum economic performance of agricultural firms. It is particularly important to characterize different criteria for deciding the need to be referred to their applicability in different situations.

The methods used in the study are statistical research and analysis of literature, observation, expert analysis and etc.

Characteristics of the management decisions taken in terms of risk

In scientific literature there are many definitions of various authors on the characterization and description of the solutions in terms of risk and uncertainty. This scientific work selected definition given in the book "Strategic Management" by F. Tarrago, M. Mirchev and G. Sheremetov (1), namely for a solution is said to have been in a risk when the subject of the

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decision not know certainly the effects of any possible alternative to the operation because it does not know an objective circumstances but recognizes their different possible states, and the probability that it can be presented to each of them. It is believed that the subject of the decision in the situation of uncertainty, when aware of the potential objective circumstances but does not know which of them will come true, nor are they aware of the probability of it (2). In the field of statistical decision theory there are different criteria, some of which will be discussed in this paper.

In the past two decades, the risk begins to explore the self as an important part of management theory and practice, yet researchers have not reached a consensus about the nature of this concept. It is important to note that risk is unavoidable in nature and can affect all areas of economic and social life. Despite the variety of definitions can be said that the risk is almost always seen as possibly adversely affect the object of management.

Stages in the decision-making

In his book "Thinking" Daniel Kahneman (3) says that "now the emotion is far more important to understand the intuitive assessments and choices than in the past." This conclusion of the Nobel laureate is supported by a number of researchers that personal biases of decision-makers, often inciting irrational to choose. Kahneman continues in his statement by saying that generally "the answer to one simple question (How do you feel about this?) serves as a response to the much more difficult question (What do you think?)". Very often in practice managers take emotional decisions without enough thought out and justified. For example, many of the interviewed grain producers (small farms), answer the question "Which crops will you produce next year?" with the answer "Those who have the highest price now". This response demonstrates the need for a profound analysis of the market situation, and technology solutions.

The analysis of decision making under conditions of risk and uncertainty is essential to include the basic stages of decision-making in organizations. Making a management decision is a sequence of connected steps or phases.

- Establishment of the problem requires a specific solution-This stage is known as the "problem analysis", as in this analysis it is important the type and the number of objectives, risks, and the time to achieve them;
- Defining the criteria for finding a solution. Criterion is an indicator of the objectives;
- Develop alternative models for making optimal management decisions;
- The final decision based on the implementation of key objectives;
- Implementation of the decision and evaluation of the results;

Selection of an optimal alternative by using the "decision tree" method

With a wide application in the management in the decision to choose an alternative is the "decision tree" method. This methodology is one of the main techniques for presenting the problem situation graphically. The advantages of this approach are:

- Present adequate most complex decision situations;
- Give the appropriately consistent decision situations;
- The situation at once composed tree is simplified and it is possible to determine more clearly which is the best alternative.

This method extends the chain of successive decisions made possible the characterization of complex problem situations in practice. It is because of its advantages the "decision tree" method is a widely used approach in practice. As for the small and medium-sized farms in Bulgaria, the use of scientific methods of decision-making is minimal. This method is shown graphically in **Figure 1** below.

LEGEND

(1-2) Tarrago, F., Mirchev, M., Sheremetov, G., Strategic Management, Sofia, Bulgaria, 1999
 (3) Kahneman, D., Thinking Fast and Slow, USA, 2011

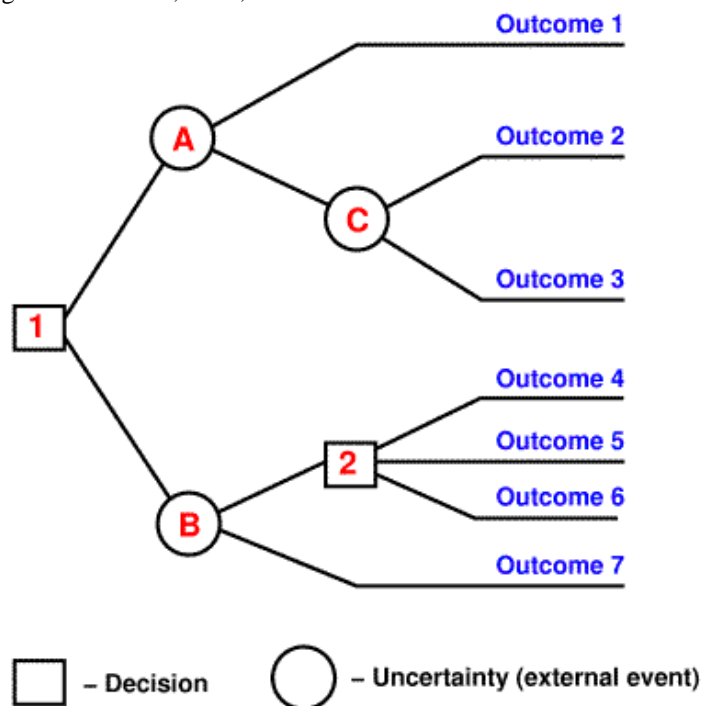


Figure 1. Decision Tree

Criteria for decision making under conditions of uncertainty

In practice, many decisions taken in terms of the ambiguity does not result in the expected and desired result, but the uncertainty is present every day. As Nassim Taleb says, inadequate uncertainty assessment of the environment inevitably mislead economic agents to take risks that should be avoided. Managers need to find creative and sometimes unusual ways to deal with it in the process of searching for the most appropriate solution. There are different criteria and approaches for improving this process. Their practical realization requires a representation of the problem situation that stands in front of the manager. In times of uncertainty, the following criteria for deciding:

Criterion of absolute optimism (maximax)

Under this criterion must choose the alternative that provides the highest payment under highly optimistic expectation that will appear most favorable state of the external environment.

$$A_{opt} = A(i) \rightarrow \text{Max} [\text{max } E(i,j)]$$

Wald criterion (maximin)

This criterion is considered moderately pessimistic assumption that the more favorable are the results for a given state of the environment, the more likely it occurs. Should be chosen the alternative giving the best financial result from adverse outcomes.

$$A_{opt} = A(i) \rightarrow \text{Max} [\text{min } E(i,j)]$$

Criterion of Savage (minimax)

The application of this criterion is associated with the evaluation of the potential loss that may be incurred in the event that it is not selected the best alternative at each position in the external environment. Potential losses (opportunity losses) were prepared in the following manner:

$$OL(i,j) = \text{Max}(j) - E(i,j)$$

The criterion of Savage also has pessimistic character as it implies allowing the worst of circumstances with respect to the external environment.

Hurwicz criterion

This criterion implies that the emergence of what is state of the external environment is equally possible. Then for each alternative solution can calculate the expected financial result by averaging the values of each row. Select the one alternative that allows maximum average.

A posteriori analysis

This analysis is based on the rule of T. Bayes, through which the re-evaluation of the probability of occurrence of the states of the external environment. The analysis begins by application of the classical method for evaluating the expected values using a priori probabilities.

CONCLUSIONS

The agricultural sector in Bulgaria has a very important role in the development of the national economy. It is essential that farmers are familiar

with the basic techniques for making management decisions in order to achieve maximum economic results. It is important to know the technology and the stages of decision making and techniques for choosing among the alternatives for action. These theoretical criteria and methods show a very small part of the whole process, but set general guidelines and consistency in making a decision.

REFERENCES

1. Tarrago, F., Mirchev, M., Sheremetov, G., Strategic Management, Sofia, Bulgaria, 1999
2. Kahneman, D., Thinking Fast and Slow, USA, 2011
3. Aleksandrova, M., Management decisions and risk, Sofia, Bulgaria, 2011
4. Atanasova-Kalaydjieva, T., Management Fundamentals, Stara Zagora, Bulgaria, 2011