

## A new approach to solve old problems

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Arrangements (agreements, contracts, regulations, bargains, etc.) are widespread economic events and are the fundamental concept of the economic theory. Infringements (breaches, modifications, deviations, changes, etc.) of arrangements are common and have a significant importance for the economic theory. For many years now the arrangement infringements have lacked appropriate attention in the economic theory. This fact caused a number of theoretical and practical problems. In order to solve them a new approach is proposed, which considers the possibility of arrangement infringements. This article gives a simple example and a new result of the approach application.

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## **1. Introduction**

### **1.1. The arrangement. The arrangement infringement. The arrangement infringement possibility approach**

In the scope of this topic, the basic terms will mean the following:

An arrangement will refer to an arrangement, agreement, assumption, regulation, bargains, contract, etc.

An infringement will refer to an infringement, violation, breach, modification, disturbance, deviation, change, alteration, etc.

A condition will refer to a condition, term, circumstance, characteristic etc. Naturally, the term “condition” means the essential, material condition.

An arrangement infringement will refer to an infringement at least one of the arrangement conditions that take place after the decision to fulfill this arrangement was made.

An arrangement infringement possibility approach is a new approach, which considers the possibility of arrangement infringements.

### **1.2. Approach elements as widespread economic events and fundamental concepts of economic theory**

It is obvious that arrangements are widely used in economic reality. Arrangements, contracts between people, firms, firms and staff, buyers and sellers, governments and so on are examples of a wide variety of arrangements.

Since the theory tries to explain reality, there should also be the concept of arrangements in such theory. Risk, investment, insurance, micro- and macroeconomics, financial economics, financial markets, international economics, labor economics, public economics are examples of fields in economic theory where arrangements may be used and studied.

Examples of arrangement infringements may be failures of power supplies, natural disasters, sudden deterioration of health of people involved in this arrangement, criminal or terrorist interventions, dishonest behavior of people involved in this arrangement, alterations of interests of parts of this arrangement etc. The expansion of arrangement infringements is the expansion of, at least, these examples

A general example of the arrangement infringement is the well-known force majeure.

Natural disasters, such as the December 2004 Asian earthquake and tsunami, may cause a lot of arrangement infringements starting with the individual business level up to the level of international economy. The examples may be humanitarian aid, debt restructuring and remissions between countries and on the international level, etc. Earthquakes and hurricanes may change microeconomics as well as macroeconomy of, e.g., USA, the world's richest country. According to Croson and Kunreuther (1999): “The unexpectedly large insured losses from Hurricane Andrew ... and the Northridge earthquake has forced the insurance industry ... New institutions have been created ... the capital markets have developed new financial instruments ...”

There are theoretical and practical topics, such as insurance, which are specially connected with arrangement infringements. Moreover, all subjects of the economic theory connected with arrangements, may consider the infringements of them.

## 2. Example of the approach application

### 2.1. Description of an experiment arrangement

For a long time the explanation of Allais paradox and similar phenomena (e.g. as examples of problems and explanations: Allais 1953; Kahneman and Tversky 1979; Köbberling and Wakker 2004) has been one of the significant objectives of economic theory models.

Suppose one of simplest experiment of the phenomenon of Allais paradox's family. Suppose Somebody offers you to choose just one of the following:

A) A guaranteed gain of 99\$.

Or

B) A lottery:

B1) the gain of 100\$ with the probability 99%

and

B2) 0\$ with the probability 1%.

The mathematical expectations of both outcomes are exactly the same. But not the common choice of people. In general, a well-determined experimental fact (e.g., Tversky and Wakker 1995) is: at high probabilities, positive guaranteed gains are more attractive than risky ones. (For the experiment accuracy, both 99\$ and 100\$ should be in banknotes of 1\$. So 99 and 100 banknotes of 1\$). In experiments similar to the one considered above, the obvious majority of people chose the guaranteed gain instead of the lottery one.

### 2.2. Existence theorem for the experiment

Taking into account an arrangement infringement possibility provides an essentially new approach. But does a non-zero arrangement infringement possibility really exist in this experiment?

To prove the existence theorem for the non-zero possibility of an arrangement infringement in the experiment, it is enough to give not less than one example of this possibility. Here are these examples: You may not absolutely exclude a sudden deterioration of your health or the health of this Somebody. You may not completely exclude a sudden criminal or terrorist intervention (as connected so not connected with the experiment). You may not completely exclude Somebody's dishonest behavior. The theorem is proven.

So, when choosing in the experiment (and analyzing the results of it) one should keep in mind a possibility of an experiment arrangement infringement.

This possibility may influence, alter, the results of the experiment. What is the direction, the sign, of this influence, of this alteration?

### 2.3. Estimation of a sign of influence of experiment's arrangement infringement possibility

The precise analysis of arrangement infringements is rather complicated due to the nature of these infringements. But the goal of this preliminary result is not to prove necessity but to show feasibility. To do this, one may note the basic reason, which may determine the sign of influence of the experiment arrangement infringement possibility.

The most remarkable outcome is when Somebody gives you no money. This influence will lessen mathematical expectations as in the lottery so in the guaranteed case. What less will predominate?

Suppose you have chosen a lottery. In this case Somebody can give you no money and will have no obligations due to the nature of lotteries. Indeed Somebody warned you beforehand about the possibility that you will gain nothing. Moreover, from the formal point of view, there may be no infringements in this case.

Suppose you have chosen the guaranteed gain. In this case Somebody can give you no money as well. But in this case Somebody will have obligations due to his promise. Even if you cannot obtain the money, you can advertise Somebody as a person who does not give good guarantees. The value of this claim for Somebody may be much more than 99\$.

What will Somebody have as a result of an arrangement infringement? In the case of the lottery it is Ok and no problems. In the case of legal agreement there are negative consequences and losses the value of which may be much more than the value of this guaranty.

Obviously, the decrease of mathematical expectations in the lottery case seems more plausible than that in guaranteed case. So, the plausible sign of influence of the experiment arrangement infringement possibility is determined.

### 2.4. Estimation of the value of influence

#### 1. What is the order of the value of the influence in general?

Obviously, Somebody giving 99\$ or 100\$ gratis to everybody will loose all his money very quickly. Hence the real probability of Somebody's 99% and 100% promises must be of zero percent order. Due to this conclusion, the probability of an experiment arrangement infringement will be of the order of 100%. So the value of influence will be in general of the order of 100%.

#### 2. What is the order of the value of the result of the competitive influence? (lottery-guarantee)

The difference between "Ok and no problems" and high negative consequences is considerable. Accordingly, the difference between the influence on the lottery and the influence on the guarantee may be considerable as well.

The product of some value of the order of 100% and of some other considerable value will be considerable. So, the resulting influence of the experiment arrangement infringement possibility may be considerable.

The conclusion of "considerability" of the influence may be obtained more easily from the following argument: Under the condition of the exact equilibrium of mathematical expectations, any influence of non-zero value will be considerable. This argument may give rise to the general assumption: when comparing the risky and guaranteed choices in the same or almost the same conditions the possibility of an arrangement infringement should be considered.

## 2.5. The result of the approach application

We have obtained the following results:

1) The sign of the resulting influence of an experiment arrangement infringement possibility is feasibly directed to decrease the mathematical expectation of the lottery with the respect to mathematical expectation of the guarantee case.

2) The value of the resulting influence of the experiment arrangement infringement possibility may be considerable.

These two results lead to a conclusion that the certain case may be actually more attractive than the lottery (when the lottery has a high probability of positive outcome and when mathematical expectations are the same).

This is in accordance with the experimental fact mentioned in subsection 2.1. And the influence of an experiment arrangement infringement possibility may, at least, partially explain the experiment fact.

Thus, arrangement infringement possibility may be responsible for, at least, a part of Allais paradox in the experiment considered. And arrangement infringement possibility approach provides essentially new view and features to fifty-years-old Allais paradox and to phenomena based on the comparison between risky and guaranteed choices.

So, the result of the application and the first basic hypothesis of approach: when a risky outcome has a high probability, arrangement infringement possibility may really reduce this probability. It can really lessen mathematical expectations (and, hence, real preferences) of such risky outcomes (or small deviations from standard ways of doing business) in comparison with the guaranteed outcomes (or standard ways of doing business).

This result may be useful, e.g., in estimating decisions of small deviations from guaranteed or well-known outcomes or ways of doing business, in predictions and planning of standard ways of doing business etc. The examples may be small deviations from a well-known style of goods or production; interventions into slightly new segments of market, banking and investment.

## Conclusions

This preliminary result represents a new approach, which considers the possibility of arrangement infringements.

The approach provides an essentially new view to phenomena based on comparison of risky and guaranteed choices.

The general assumption and the new result of the approach application are:

1) when comparing the risky and guaranteed choices in the same or almost the same conditions the possibility of arrangement infringements should be considered.

2) when a risky outcome has the high probability, the arrangement infringement possibility may really reduce this probability.

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