UNCERTAINTY, PROBABILITY AND GAMBLING

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Introduction

In the first place we are going to see how we can understand uncertainty, we will start with Mises pointing out the proximity that exists between uncertainty and human action. We will emphasize that they are inextricably linked, and although uncertainty cannot be made disappear, we will see, following Professor Huerta de Soto, ways to mitigate it.

We will rely on Rothbard's opinion to see the two possible origins that uncertainty can have, according to him, that is, the impossibility of prediction and the lack of knowledge.

Later we will see what we can understand by probability and its usual use in areas that are not the most appropriate for it. Next we will review the two types of probability: the one that is typical of the natural sciences, and that is characterized by being the only one that can be insurable and is capable of being expressed numerically, and which is known by the name of 'class probability' according to Mises, or 'risk' according to Frank H. Knight.

And the other one, that occurs before a unique event, which we cannot label into any class, since it is the only one of its kind and its typical of human action and is called, according to Mises's terminology, 'case probability' and according to Knight's, 'uncertainty'.

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We will see that Mises and Rothbard point out the differences between gambling, on the one hand, and entrepreneurship, on the other. Mises, in the sense that games are not based on cooperation, and that they are characterized as 'zero-sum games', in which some have to lose for others to win, while business is based on social cooperation. For his part, Rothbard will point out that by exposing himself to gambling, what he will do is generate, voluntarily, new risks that did not exist before, while the businessman with his actions, for his part, will try to achieve exactly the opposite, mitigate the uncertainty through the correct use of the business function.

Uncertainty

Every action undertaken by the human being is inevitably linked to some uncertainty. Therefore, we must start from the premise that as a consequence of the nature enjoyed by the human being, when humans act, they face an ineradicably uncertain future.

A future that is open to all those possibilities that the human being is capable of imagining and creating, in short, the future is not yet to come, the future is something to be made (Huerta de Soto 2015).

Although it is true that it will not be feasible to eliminate the uncertainty of the future, Professor Huerta de Soto points out two means by which it can be mitigated and faced with better guarantees:

— With the use of institutions, which we can understand as those patterned behaviors that have arisen spontaneously and evolutionarily throughout history and that are used by human beings to achieve their goals.
— And through the correct exercise of the business function, since, by pursuing an end, we tend to get closer to its achievement.

If the human being enjoyed an omniscient nature and possessed the faculty of knowing the future, he would not be forced to choose when to act, and he would be transformed into a simple "automaton, reacting to stimuli without any will of his own" (Mises 2011, 127).

But the reality is quite different, when acting the human being always has to choose between various options available to him, and as a consequence, he always has to face a future that is uncertain. But as Mises emphasizes in another of his works "the fact that the future is uncertain and that we are individuals who act freely are the same fact. If the future were known, we would not be men, we would not be free and we would not be able to make decisions and act." (2021, 83).

In the same line are O`Driscoll, Jr. and Rizzo (2009, 107-108), who point out that:

> "True uncertainty implies an unlimited series of possibilities. At the moment of choice, the individual will have estimated a certain number or series of possibilities. However, he is fully aware that in a world of change something could happen that he did not initially expect. So he understands his possible choices as, in principle, unlimited, at least in certain respects."

In short, the future is built with the evolution of day to day.

In Rothbard's opinion we find uncertainty in everything related to the future, given that, if it were not so, human action would cease to make sense, given that "If man knew future events completely, he would never act, since no act of his could change the situation. Thus, the fact of action signifies that the future is uncertain to the actors" (2011, 7).

This uncertainty about future events can basically have two origins:

— On the one hand, the impossibility of predicting the acts of choice of individuals. Since "All human choices are continually changing as a result of changing valuations and changing ideas about the most appropriate means of arriving at ends" (2011, 7).
— And, on the other hand, an insufficient knowledge about the occurrence or not of natural phenomena. Because "man does not know enough about natural phenomena to predict all their future developments, and he cannot know the content of future human choices." (2011, 7).

In short, the human being, when acting, will undertake speculative actions that will be based on his subjective judgment about what he understands will happen in the future.

Probability

Before we address the different types of probability that we can find, it should be remarked that etymologically speaking, the term probability comes from the latin *probabilitas* and is made up of the verb *probare* (check, test), the suffix *-bilis* (indicating possibility), and the suffix *-tat* (indicating quality), meaning the quality of being able to prove.[1]

From its etymological definition we can deduce, as Peter G. Klein (2010, 119) points out, that "probabilities can only be defined *ex post*, as learned through experience, and cannot exist *a priori*".

Mises (2011) points out that the closest approach to certainty is produced by calculating probabilities, but emphasizes that apodictic certainty only has a place in the deductive system, which is characteristic of a priori sciences. This certainty cannot be achieved in inductive reasoning, which is the method used by the natural sciences.

Consequently, it should be noted that it is a mistake to associate the calculus of probabilities with the natural sciences, although this would not be the only possible source of error.

Mathematicians by using the elements of probability, have caused quite a bit of confusion. As Robert Murphy says "the formal treatment of probability by the mathematicians has seduced many people into believing they know more than they really do" (2008, 45), being solely and exclusively the field of praxeology the only appropriate field of action in everything concerning probability.

But we must not forget that Praxeology is subject to certain limits, as Hoppe reminds us, "praxeology allows us to predict with certainty some future events and aspects of the world of human

[1] Etymology of the word 'probability' [recovered the 11-06-2022], available in http://etimologias.dechile.net/?probabilidad

actions, but its range of applicability is strictly limited. There are many events and aspects, and indeed far more of far greater practical significance, about which praxeology has nothing to say" (2021a, 268).

Once outlined what we can understand by probability and its scope of applicability, we are going to review its types. But first, we would like to point out that although Frank H. Knight and Ludwig von Mises had discrepancies throughout their academic life on different topics, such as, for example, the nature of socialism and capital; in other aspects they had similar visions, as in this specific one that concerns us. Since both were in favor of the frequential interpretation of probability, and they were fully aware of its limitations, in the field of economics in particular and in the field of social sciences in general (Hoppe 2021a).

Regarding Frank H Knight (1885-1972), it should be noted that he was a leading member of the Chicago School who differentiated between 'risk' or objective probability, and 'uncertainty' or subjective probability [which Mises will call 'class' and 'case' probability, respectively]. Remarking as a difference between the two categories that:

> "In the former [risk] the distribution of the outcome in a group of instances is known (either through calculation *a priori* or from statistics of past experience), while in the case of uncertainty this is not true, the reason being in general that it is impossible to form a group of instances, because the situation dealt with is in a high degree unique" (Knight 1964, 233).

We can tell about frequential interpretation of probability that the founder and main defender was Richard von Mises (1883-1953), who, among others things, pointed out that "it is possible to speak about probabilities only in reference to a properly defined collective" (1957, 28).

Hoppe in *The Limits of Numerical Probability* (2021b) notes that although both Knight and Ludwig von Mises followed the theory developed by Richard von Mises; neither in Knight's work, *Risk, Uncertainty and Profit* (1971), nor Ludwig von Mises in his *Human Action* (1949) make any mention of Richard von Mises.

Class Probability

Regarding class probability, Mises (2011) characterizes it as one that, based on an event, can lead us to believe that we know how a certain class of facts or phenomena operate; but that does not try to predict the outcome of specific cases, only to assert the frequency with which the different results tend to occur.

This definition is very similar to Richard´s von Mises one, "class probability means: We know or assume to know, with regard to the problem concerned, everything about the behavior of a whole class of events or phenomena; but about the actual singular events or phenomena we know nothing but that they are elements of this class" (1957, 109).

Class probability is governed by causality, that is, by the mechanical laws of cause and effect, and it is the only one that can be expressed by numerical expression.

Professor Huerta de Soto summarizes in his work *Socialism, economic calculation and entrepreneurship* (1992) the characteristics by which probability rules for the world of natural science are the following:

— It is one in which the behavior of the class is known or can be known, but not the individual behavior of its elements.
— There is a risk situation in which the entire class can be insured.
— Probability can be treated with mathematics.
— It is achieved through logic and empirical research. Bayes' theorem allows us to approximate the class probability.
— It is the subject of research by the natural scientist.

If class probability (or 'risk' according to Knight) has a distinctive feature, it is possible insurability, therefore, when we are referring to a group that makes up an entire class, or to a number of people large enough to be able to consider it as such, we can eliminate a specific risk by insuring the entire class, because insurance is not based on the calculation of probabilities, but on the association and distribution of risk among the members of that class. Thanks to the above, the insurance system does not turn out to be

essential for the elimination of the risk, the association of the members of the class would be a sufficient system for this (Mises 2011).

Rothbard, following the nomenclature used by Knight, points out that "«risk» occurs when an event is a member of a class of a large number of homogeneous events and there is fairly certain knowledge of the frequency of occurrence of this class of events" (2013, 46).

In short, when companies and human beings are exposed to the type of risks described in the previous paragraph, it is considered that we are facing a type of actuarial risk, that is, calculable or evaluable, therefore, susceptible to insurance. A different thing is business uncertainty, which is not insurable.

Pascal Salin (2008, 361-362) points out that the use of insurance companies has been "the means that men have imagined in their wisdom over time to satisfy security needs in the best possible way and thus ensure solidarity between men subject to different risks [but homogeneous]".

But there are exceptions, like business action where it is impossible to assure the action of the entrepreneur, as Robert P. Murphy points out "all entrepreneurship involves bearing uncertainty; it cannot be transferred away" (2006, 101).

Rothbard points out that the principle on which insurance is based is "that firms or individuals are subject to risks which, in the aggregate, form a class of homogeneous cases" (2013, 47).

Reusing the terminology already used by Knight, Rothbard (2013) points out that there are assumptions that are subject to "uncertainty", characterized by being unique cases that each company or human being must face with it when acting, although they may present similarities with other cases, they are not part of any homogeneous class, and therefore they are not insurable. From what we can follow that there are no constant relationships in human action, and therefore no human being should base their decision making on probabilistic ideas (Hülsmann 2019).

Case Probability

Speaking of case probability, we can define it as the one that takes place in a specific and determined event, historically unrepeatable

that occurs when an event takes place that, even knowing some of the elements that compose it, does not form part of any class of homogeneous phenomena, since each event is the only element of its kind.

Or as Mises explicitly points out, "case probability is a particular feature of our dealing with problems of human action. Here any reference to frequency is inappropriate, as our statements always deal with unique events which as such -i.e., with regard to the problem in question- are not members of any class." (2011, 134).

Consequently, the term probability cannot be applied to a unique event, since "the theory of probability can never lead to a definite statement concerning a single event […] it is posible to speak about probabilities only in reference to a properly defined collective" (R.Mises 1957)

Hoppe is of the same line of opinion, which is demonstrated by these words, "It is possible to speak about numerical probabilities only in reference to a properly defined collective. […]. Each human action must be considered a unique event, constituting a class of its own" (2021b, 299).

Therefore, as we have said before, if class probability is the one that prevails when referring to aspects of the natural sciences and is governed by causality, case probability will be the one that occurs in the field of human action and entrepreneurship, and will be governed by teleology, that is, the belief that the universe is governed by an order of ends in which things tend to be realized and not by a mere succession of causes and effects.

Without forgetting, as Richard N. Langlois points out, "all entrepreneurial action involves 'case probability'; but all 'case probability' does not involve entrepreneurial action" (1982, 36).

In the same way as with the probability that governs natural science, Professor Huerta de Soto (2015) summarizes the characteristics by which probability rules for the world of human action:

— In this one, there is no class in which to classify the event, but some factors are known that affect the unique event and others are not. The action itself causes, or creates, that event.
— There is ineradicable uncertainty, given the creative nature of human action. Uncertainty is not insurable.

— You cannot deal with math.
— It is discovered through business understanding and estimation. Each new piece of information modifies *ex novo* the entire map of beliefs and expectations.
— It is the typical concept used by the actor-entrepreneur, or by the historian.

In short, since the probabilistic calculus cannot be applied to the case probability, the only correct method to adopt when facing the uncertainty of a future event will be understanding (*Verstehen*).

With regard to the method of understanding, Mises says the following in *The Ultimate Foundation of Economic Science* (2012, 87-89):

> "Understanding deals with value judgments, with the choice of ends and means used to achieve these ends, and with the evaluation of the result of the actions that were carried out. [...] Understanding is not a method of proceeding particular to historians only. It is practiced by young children as soon as they outgrow the merely vegetative state of their first days or weeks. There is no conscious response of man to any stimulus that is not directed by understanding […] Understanding presupposes and implies the logical structure of the human mind with all the *a priori* categories. […] The understanding aspires to anticipate future conditions to the extent that they depend on ideas, wills and human actions. […] Understanding does not deal with the praxeological side of human action. It refers to value judgments and the choice of ends and means on the part of our fellow human beings. It does not refer to the field of praxeology and economics, but to the field of history. It is a thymological category."

And in his work *Theory an History* (2016, 281) Mises reviewed the following on thymology:

> "Thymology is, on the one hand, a product of introspection and, on the other, a sediment of historical experience. It is what we all learn through our relationships with others. What a person knows about the way others value different situations, about their wishes and their plans to realize those wishes. It is the knowledge of the social environment in which man lives and acts or, in the case of

> historians, of an alien environment that is known through the study of special sources."

Always keeping in mind, as Mises points out, that "every action is a form of speculation. There is in the course of human events no stability and consequently no safety" (2011, 136-137).

Having indicated with respect to speculation that:

> "Today it is used with a connotation of opprobrium to lower those men who, in the capitalist market economy, manage to anticipate the future reactions of others better than the average man. The foundation of this semantic use must be found in the inability of the short-sighted to notice the uncertainty of the future. These people cannot realize that all productive activities seek to satisfy the most urgent needs of the future and that currently there is no certainty regarding these conditions. They are not aware that there is a qualitative problem in the provision for the future. […] Every action is a speculation guided by a definite opinion regarding the uncertain conditions of the future" (Mises 2012, 90).

Gambling

Regarding gambling and the probabilities, Mises (2011, 131) points out without leaving any doubt that:

> "It is a serious mistake to believe that the calculus of probability provides the gambler with any information which could remove or lessen the risk of gambling. […] It is the characteristic mark of gambling that it deals with the unknown, with pure chance. […] They don´t give a thought to the fact that, because the ruling odds favor the banker over the player, the outcome will the more certainly result in a loss for them the longer they continue to play. The lure of gambling consists precisely in its unpredictability and its adventurous vicissitudes."

Regarding the possible relationship between gambling and business, it should be noted that they are in diametrically opposed

positions. The gambler has to follow the rules that are established, and you have to compete either with the rest of the participants or with the organizer himself, being in any case a zero sum game; while in business progress is made, not defeating anyone, but satisfying the needs of consumers better than the rest of the competitors.

It is not the place, but regarding competition we will only say that:

> "Competition does not involve antagonism in the sense in which this term is applied to the hostile clash of incompatible interests. Competition, it is true, may sometimes or even very often evoke in the competitors those passions of hatred and malice which usually accompany the intention of inflicting evil on other people. Psychologists are therefore prone to confuse combat and competition.. […] Competitors aim at excellence and preeminence in accomplishments within a system of mutual cooperation. The function of competition is to assign to every member of a social system that position in which he can best serve the whole of society and all its members. It is a method of selecting the most able man for each performance." (Mises 2011, 141).

Rothbard (2013), for his part, points out that it is not correct to compare business performance, which is subject to situations of risk and uncertainty, with situations that may occur as a result of gambling or betting, for the following reasons:

— The person who resorts to gambling and betting, with his actions, creates new risks and uncertainties for his own satisfaction, which otherwise would not have existed.
— While the entrepreneur with his actions seeks precisely the opposite, instead of creating any uncertainty voluntarily, he seeks to reduce it as much as possible.

We can conclude that business and gambling are quite different.

Summary

Uncertainty	— Every action undertaken by the human being is inevitably linked to some uncertainty. — Origins of uncertainty: · Impossibility of predicting the acts of choice of individuals. · Insufficient knowledge about the occurrence or not of natural phenomena. — Ways to reduce it: · With the use of institutions. · Through the correct exercise of the business function.
Probability	— Class probabilty: · It is governed by causality. · It can be expressed by numerical expression. · The entire class can be insured. — Case probability: · It refers to unique events, that are hirtorically unrepeatable. · Such events are not insurable.
Gambling	— Deals with the unknown. — The probability calculation is not useful for the gambler. — Gambling is a zero sum game.

Conclusions

— Inevitably all human action is accompanied by a certain uncertainty that makes the future ineradicably uncertain.
— If the future were known in advance, we would not be able to act and make decisions.
— Uncertainty can be caused by both the impossibility of prediction and insufficient knowledge about natural phenomena.
— The only correct field of action for probability is the field of praxeology, its application to the field of natural sciences being a mistake.
— We can distinguish between a class of probability, or risk, in which, taking an event as a reference, we can believe that we know how a certain class of facts operates, being applicable to the field of natural sciences. It is insurable.
— On the other hand, we find case probability, which would be the one that would occur before a specific and determined

event that was not part of a class of homogeneous phenomena. It will be the one that has a place in the field of human action and business function, it will be surrounded by ineradicable uncertainty and therefore it will not be insurable.

— In the gambling chance prevails, there is no calculation of probability that helps the player.

— Gambling differs substantially from business, in the former you have to defeat the rest of your competitors, while in business you prosper by satisfying the needs of consumers better than the rest.

— People betting and gambling create risks that otherwise would not have occurred. While the entrepreneur in acting seeks exactly the opposite, the reduction of uncertainty.

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