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Game Theory and Their Applicative Importance in the Economic-business Reality: A Valid Tool for ensure the Success of Business Decisions

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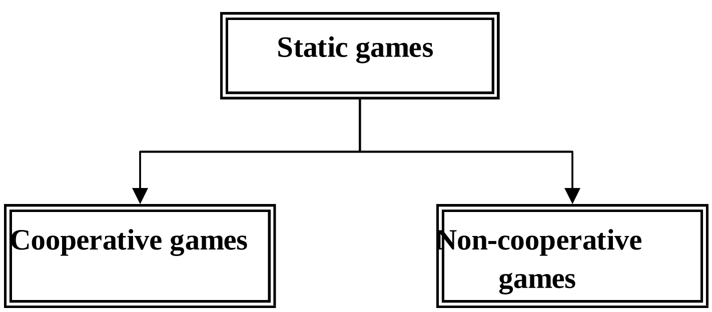
Abstract
Game theory is a discipline that studies mathematical models of strategic interaction between rational agents. Game theory was developed in the 1950s by many scholars. It was explicitly applied to natural evolution in the 1970s, although similar developments date back to at least the 1930s. It has applications in various fields of the social sciences, as well as in logic, systems theory, and computer science. In light of this, the work was born with the intention of highlighting some types of games by paying attention to their applicative importance in the economic-company reality.

Keywords: Game Theory, Applications, business context

1. Cooperative and non-cooperative games

The more general distinction, within static games, is the one that allows us to separate cooperative games from non-cooperative ones.



The nature of a cooperative game is such that mutual collaboration produces greater revenue opportunities for all players. Therefore, the main problem that arises in the context of cooperative games is constituted not so much by the choice of moves by the players, but rather by the way in which to share the greatest profits deriving from the collaboration. It is therefore admitted that the players can agree in advance both on their respective moves and, above all, on the division of the overall stake, negotiating any collateral transfers. However, the relevance of this category of games in the economic sphere is relatively limited. It follows, of course, that the

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category on which we will focus most of our attention is the one that deals with non-cooperative games. Then:

- it is excluded that there may be preliminary negotiations of a binding nature;
- it is also excluded that collateral payments may take place between players, ie each player receives what attributes the outcome of the game to him and the existence of payments between players is not permitted.

We will now see in detail first the cooperative games and then the non-cooperative ones.

✓Cooperative games

Cooperative game theory is a complementary branch of game theory that mainly deals with non-cooperative games as it deals with the coalitions that can be formed between groups of players for the purpose of common goals, as well as how they divide the results. once they have contracted binding, i.e. irrevocable, mutual commitments. The problem of cooperative games is that it is necessary to formulate the hypothesis of the existence of a mechanism that guarantees cooperation agreements and those relating precisely to mutual commitments. Indeed, if the cooperation produces gains, but if the distribution of these gains does not guarantee sufficient incentives to make the coalition of players conform to the strategic combination of cooperation, it is necessary to assume the existence of an external authority that obliges the cooperative, otherwise one or more of the members of the cooperation will end up denying it. The need to insert this hypothesis has the operational significance of cooperative games, however, can be grasped in this elementary example. Robinson Crusoe on his remote island only has to face technical problems related to his survival: but that is until he meets the faithful Friday. At that point they can cooperate they have no interest in competing, as theirs are complementary, but to cooperate they have to learn. A simple exercise can put them in difficulty: they may be able to build a dugout by digging wood with fire, but only to find that the more they row, the more the dugout goes around, until they understand that to make it go in a straight line they must row each on both sides. opposites of the boat significantly slowed the introduction of a formal theory of cooperative games of the same formal rigor and of the same importance as the one developed with regard to non-cooperative games. This without neglecting the fact that, in real life, situations of cooperation are no less widespread than those of competition: cooperation between companies, for example, in the form of joint ventures, alliances, formation of consortia and the like, has given rise to an important strand of managerial and strategic literature. Whether or not to model a given situation as a cooperative game ultimately depends on the institutional context. If you can be sure that the agreements made can be made binding, then modeling as a cooperative game can be useful or even advantageous. In other cases, the usual modeling as a non-cooperative game is certainly more appropriate. For example, international economic relations, in which the possibility of making stipulated agreements mandatory is certainly limited, are generally better modeled as non-cooperative games. In light of the above, we can therefore say that cooperative games are those in which players can communicate and establish binding agreements before starting to play. In non-cooperative games, on the other hand, the players either do not communicate with each other or, if they do communicate (pre-play negotiation), do not adhere to binding commitments regarding the behavior to be followed during the game. In cooperative games, therefore, the players act as single individuals trying to get the best for themselves, given the well-defined set of the rules of the game. It should be emphasized that the outcome of a non-cooperative game can give rise to a combination of cooperative strategies, but this happens because this cooperative behavior reflects the interest of each player taken separately. In other words, it is in the individual player's interest to stick to cooperative behavior because if he leaves it he will suffer the retaliatory actions of the other players with a negative effect on the payments he receives. This distinction is not always clear but, essentially, in the theory of non-cooperative games, the unit of analysis is the individual participant in the game, who tries to get the best for himself given a well-defined set of rules and constraints. If it occurs that individuals choose behaviors that in common parlance would be defined as "cooperative" then this happens because this cooperative behavior reflects the interest of each individual taken separately; each of them in fact fears the retaliation of the others in the event that cooperation is interrupted, in this type of games they are not feasible, therefore binding agreements between the players. On the contrary, in the theory of cooperative games the unit of analysis is the group or, in the usual jargon of game theory, the coalition; and binding agreements between players are practicable. It is when a game is defined, it is necessary to specify what each group or coalition of players can achieve, without reference to how the coalition is able to influence a particular outcome or outcome of the game. Therefore, in particular, if it is possible to reach binding agreements between the members of any subset of the players we are facing a fully cooperative game, if instead, only a few players can carry them out we have a partially cooperative game. We can therefore highlight that we are in a cooperative situation if some producers can conclude binding cartel agreements that establish, for example, production quotas or other limitations on the decision-making autonomy of individual cartel participants to obtain increases in the well-being of cartel participants to the detriment of consumers and/or competitors. On the other hand, the game is non-cooperative when everyone keeps their decision-making autonomy in tact, or is subject in their decision-making choices only to technological constraints. Before concluding, it should be noted that the vast majority of economic applications rely on the theory of non-cooperative games and there has been no lack of criticism to the application of cooperative games. In fact, at the basis of these criticisms it is pointed out that, in order for the agreements that are assumed to be binding to be really binding, there should be those who enforce them with appropriate sanctions. But these considerations are already an implicit admission of the concrete possibility of violating the agreements. If we want to push our analyzes to this point, and we are inevitably forced to do this if we do not want to make ad hoc hypotheses, we place ourselves in the context of non-cooperative games.

- ✓ **Non-cooperative games**

In non-cooperative games the players either do not communicate with each other or, if they do communicate (pre-play negotiation), they do not adhere to binding commitments regarding the behavior to be followed during the game. In this type of game, therefore, the players act as single individuals trying to get the best for themselves, given the well-defined set of the rules of the game. It should be emphasized that the outcome of a non-cooperative game can give rise to a combination of cooperative strategies, but this happens because this cooperative behavior reflects the interest of each player taken separately. In other words, it is in the individual player's interest to stick to cooperative behavior because if he leaves it he will suffer the retaliatory actions of the other players with a negative effect on the payments he receives.

Therefore, the elements that characterize this type of game are:

- ✓ Each player makes the choices simultaneously
- ✓ each player plays alone and wants to maximize his utility,
- ✓ Players cannot enter into binding agreements (including regulatory ones), regardless of whether their objectives are:
- ▪ conflicting (conflict)
- ▪ municipalities (interest in agreeing)
- ▪ there is no room for cooperation.

Of a non-cooperative game it is possible to give a very detailed description regarding its development over time, the extended form, or a somewhat more concise description, in which only the winnings corresponding to each combination of strategies chosen by the players are indicated. This is called normal form of the game. But what a strategy is can only be deduced from the analysis of the extended form of a game. Even the distinctions between games with perfect and imperfect information, and with or without the intervention of chance, find their most natural place in the extended form. Even in the context of strategies, there is a fundamental distinction to be made between mixed strategies and behavioral strategies. Let's now look at some types of non-cooperative games.

2. Others Games

❖ Games in strategic or normal form

There are two ways of representing non-cooperative games: the strategic form (or normal form) and the extended form. The game in strategic form (or normal form) is characterized by three elements:

- ➢ The list of players;
- ➢ The set of strategies for each player
- ➢ The winnings (or payouts) each player gets for each combination of strategies.

❖ Games in extended form

Let us now consider the games extended informs. In this type of game, "the temporal sequence of the actions that the players can perform and the information they have when choosing these actions is of great importance". In cases where the order of the moves is specified in a game, the so-called extended form can also be used in addition to the matrix representation. In this type of games, the temporal sequence of actions that individuals can take is of great importance. We can loosely identify an action as a choice made at a given moment of the game. A strategy will therefore be, in this context, a sequence of actions one for each moment in which the player finds himself making decisions. A game in extended form consists of a decision tree consisting of nodes, or nodal points, and branches, or arcs, which proceeds from an origin node to the terminal nodes without a closed circuit. The tree also contains information on the belonging of the nodes to each player, the probability that "nature" (an external force) uses at each branch and the utilities or payments to each terminal node. The choices or decisions of the actors are usually represented by squares, the random events determined by nature by circles. For each uncertainty probabilities are estimated and then the result connected to each sequence of choices and uncertainties is calculated. Alternative courses of action can then be compared by retracing the decision tree or by calculating the product of the probabilities and results along each branch of it. A tree structure offers an explicit description of the order of play and the information available to each player at the time of the decision. Each vertex represents a player's turn and the branches that branch off represent the moves this player can make. A succession of vertices, connected to each other, therefore corresponds to an ordered succession of moves and identifies a path: a path can lead to an intermediate or final vertex (i.e. from which no further ramifications branch off) to which a vector of payments.

3. Some application of the games in extended form

In the following pages two applications of the games in extended form applied to the company reality will be presented. In doing so we want to highlight and strengthen themy thesis, namely that today more than ever game theory is becoming a valid tool of aid and support in business decisions.

- **The application of the game in an extended form to the investment risk**

In this paragraph we offer an example of how game theory helps the entrepreneur in choosing a particular investment, thus minimizing the risk associated with the same investment. Let's assume that a particular company lives in the following doubt: to invest in a new product or not. To resolve this doubt, we apply the game in extended form to the entrepreneur's decision, highlighting its usefulness. Suppose a given firm X has to decide whether or not to produce a new product which we call product one. If she decides yes, she is again faced with a choice: build a new plant or convert the existing one. The outcome of each decision depends on whether there is a market for P and its size, if any. X estimates that there is a 50% probability that this market exists, and if so, there is a 60% probability that it is large and a 40% probability that it is small. The decision tree of X then takes the form of the following figure: the probabilities are indicated in brackets while the results appear at the end of each branch. The maximum theoretical expected cash flow is equal to 50 million euros. To calculate the results, X took into consideration three factors: the actual expected cash flow in relation to the size of the market, the cost of building a new plant or converting the existing one and, in the latter case, the reduction in cash flow from the failure production of the products currently made there, estimated at 20 million. Initially, the results related to the choice not to produce P appear to be zero. However, X has estimated that the actual sales of its products would be reduced by 20 million if a market, even a very small one, emerged for P and this was attacked by competitors who could offer a complete range. In order to be able to compare the three alternatives - build a new plant, reconvert the existing one or not produce P - the probable result at the end of each branch of the

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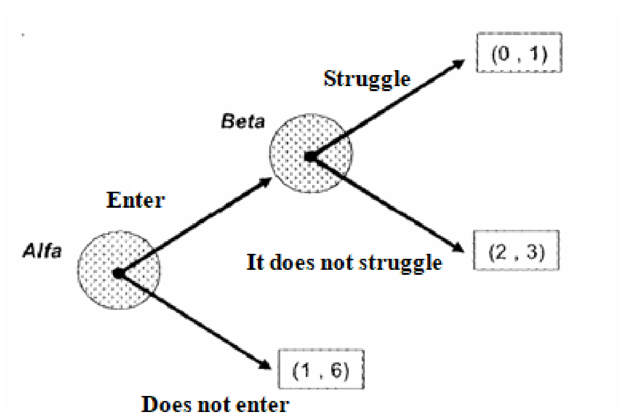
tree is calculated by multiplying each result by the probabilities preceding it and adding the values of the product for each branch. Based on these calculations, X will choose to build the plant. In fact, in this case it obtains a maximum result of 21 million and a minimum of 14 million (if the market is small). The reconversion hypothesis guarantees a maximum cash flow of 12.6 million with a probability of 70% and a minimum of 8.4% with a 30% probability if the market exists and is small. In the hypothesis of not building, we can measure the company's "regret" at 12.6 million euros if the market is large and 8.4 million euros if it is small, while the regret will be equal to 0 if a there is no market, after all.

- **The application of games in extended form to the threat of entry**

Let's see an example of the application of games in extended form known in the literature as the entry threat. The Beta company is a company that has been operating as a monopolist (with a well-known brand) for several years in a particular segment of the consumer electronic product market (for example, microwave ovens). Since the growth rate of demand in this segment is particularly strong, a second firm (the Alfa firm) which, while producing other types of products, also operates in the consumer electronics sector, is evaluating the opportunity to diversify its production by entering the same market segment in which Alfa is a monopolist. The Beta company believes that the Alfa company has the necessary technical and commercial knowledge to successfully compete in the microwave oven segment. It therefore constitutes a serious threat to Beta. In evaluating how to react in the event that the Alpha company decides to implement the decision to enter, the Beta company realizes that it has only two response strategies. The first strategy is to make the best of a bad situation, that is, to accept a division of the market by adjusting its production and distribution policies accordingly. The second is a retaliation strategy based on a war without quarter using all the tools of the marketing mix (strong investments in aggressive forms of advertising, adoption of expensive commercial promotion policies at retailers, strong price reductions). The Alfa company has the first move in the first stage of the game. It can decide to enter or stay out of the market. The Beta company observes Alfa's move. If Alfa decides to enter, Beta can respond either with an accommodating action or with an aggressive action. This game we call "entry threat" is represented in extended form in the following figure:



The representation takes the form of a tree in which:

a) The nodes (each of which is headed to a particular player) indicate the points at which one of the players must choose some action.

b) The labels indicate the moves (or actions) that can be chosen by each player in the nodes that are registered to him.

c) The arrows indicate the logical succession of choices that each player must make.

When an arrow leads to a vector of numbers, this means that the corresponding action leads to the conclusion of the game. The vectors indicate the payments (positive or negative) achieved by the players with the caveat that, in our case, the first number refers to the payments obtained by Alfa, while the second refers to the payments obtained by Beta. Examining the tree of the game it is observed that, if the Alpha firm decides not to enter, the game ends immediately assigning to the Beta firm the monopoly profits (equal to 6), while the Alpha firm obtains that level of profits (equal to 1) deriving from the use of one's own resources in the investment project which constitutes the best alternative (with the same risk) to the main program (investing in the microwave oven sector). If, on the other hand, the Alpha company decides to enter, the next move passes to the Beta company. The latter, if it decides to act aggressively (price struggle), is able to cancel Alfa's profits but must accept a sharp reduction in its own profits (equal to 1). If Beta, on the other hand, allows entry, it will be able to obtain a level of profits equal to 3, albeit slightly higher than the profits obtained by Alfa (remember that the Beta company boasts greater commercial experience). It is important to highlight that the game we are examining belongs to the class of games with complete information, which means that all the elements that characterize it are common knowledge among all players. This means, with particular reference to our game, that both the Alpha company and the Beta company know they are rational subjects and know that the rival company is also a rational decision maker; moreover, both players know not only their own profits but also those obtained by the rival company for each of the paths in which the game tree branches. The game in question, moreover, also belongs to the class of games with perfect information, which means that when, in the course of the game, it is up to a player to choose the move to make, he knows with certainty in which node he is. That of perfect information is an important notion for game theory. We will clarify the meaning of this notion by contrasting games with perfect information to those with imperfect information.

4. Games with perfect information

The games with perfect information, also defined as complete information, are those in which a player at any particular moment of the game knows the progress of the game up to that moment. It is therefore required that each player have all the information on the context and on the strategies of the opponents, but not necessarily on their actions; for example, players could be asked to decide their move simultaneously, in secret, and then play it at the same time, and therefore without being able to evaluate in advance the effects in the opponent's move in the elaboration of their own strategy. Examples of perfect games are: checkers, chess and so on; these are games with perfect information and without the intervention of the element of luck. In these types of games, therefore, no random element, coin toss or dice, is involved. However, if

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we make the start of a chess game proceed from the toss of a coin, to decide who is white, we get an example of a game with perfect information but with the intervention of luck. Therefore, it should be noted that a necessary, but not sufficient, condition for a situation to be modeled as a game with perfect information is that it does not foresee the presence of simultaneous moves by the players.

5. Games with imperfect information

We are faced with a game with imperfect information when the player does not know exactly the progress of the game. To fully understand how imperfect information games work, let's consider the following example. Let's assume that a company is considering the possibility of marketing a new consumer good on a large scale, for example a new toothpaste in a new market. The success of this operation basically depends on the company's ability to motivate consumers to purchase through an expensive advertising campaign. Since the company does not have the essential skills internally to design and produce advertising spots, it is obliged to use a specialized agency. Suppose that the professional reputation of this agency is good, but the company knows that, despite the agency's efforts, there is a 70% probability that the advertising campaign will lead to a mediocre result. How can we represent this situation in the language of game theory? At first glance, one might think that in this situation there is only one player (the company). On closer inspection, however, the company must face a second player, and precisely a player who establishes the probabilities that the advertising campaign will have a positive outcome (success) or only a mediocre outcome (failure). the name by nature or by chance. At the beginning of the game, nature moves, the choice of which cannot be observed by the company. Just to fix the ideas, let's suppose that the "nature" player adopts the procedure of randomly drawing a card from the 10 "cup" cards belonging to a deck used to play "trump" to choose which move to make. If the drawn card is a number, then the game will move to node “c”; if the drawn card is a figure (knave, knight or king), then the game will move to node “b”. The problem, of course, is that the firm in question only knows the logical probability that a figure or number will be drawn, but not exactly which card was drawn by the "nature" player. Consequently, the company, when it is its turn to decide, does not know if it is in node b or node c. Game theory represents this situation by including nodes b and c in the same information set At this point we must ask ourselves what will the company's behavior be? Let us say, it has set a budget of 100 million for its advertising campaign and knows that if the commercials are successful, it will be able to achieve a result of 500 million (additional sales minus the costs of the campaign). If, on the other hand, the communication program does not achieve the hoped-for success, it achieves a mediocre result of 10 million. Finally, if the company decides not to invest in the project, whatever the choice made by nature, it obtains a result equal to 100 million, that is to say, it conserves its financial resources which can be invested in other projects. If the company decides to make the investment, its expected result will be equal to:

$$(0{,}3 \cdot 500) + (0{,}7 \cdot 10) = 157$$

Since this result is greater than what it gets if it does not make the investment (100 million), it will find it convenient to implement the initiative. But, is this really so? Note that the project appears particularly risky given that there is a 70% probability that it will generate poor results. It should therefore be emphasized that the conclusion reached critically depends on the hypothesis that the company is a neutral subject towards risk, that is to say that it considers that the usefulness of obtaining 100 million with certainty is equivalent to participating in a lottery whose value expected to be equal to 100 million. If the company were an averse to risk then the safe utility of 100 million could be greater than the expected utility of 157 million and in this case, of course, we would have to reverse the conclusions reached earlier.

6. Differential games

Differential game theory arose from the work of Isacs (1954), in the form of internal reports of the Rand Corporation, containing the results of his research since the end of the previous decade. The reason for the marginalization of differential game theory from the mainstream of theoretical economics is certainly to be identified in the fact that Isaacs, like many of his colleagues, was bound by the secrecy imposed by the United States government, which intended to use the research for military, in the midst of the Cold War. The same considerations apply, in principle, to the counterparts of Isaacs and his colleagues in the Soviet Union. In both cases, the results of their research were made available to the scientific community in the mid-1960s (Isaacs, 1965; Pontryagin, 1966). As a direct consequence of this delay, the economic applications of differential game theory are extremely recent and relatively few. Differential games (or "own" dynamic games) are characterized by the fact that at least one variable, relevant to the payoffs of the players, changes its value over time, following the strategies adopted by the players themselves. We will illustrate this type of games in very general terms, treating time as a continuous variable. Let 1 and 2 be the players in question and they can choose as strategies real numbers, which we will denote, respectively, with $u_1(t)u_2(t)$and. The values of the strategies they are a function of time: it is therefore not a question of choosing a value, but a temporal path of values to be played. We will call$u_1(t)$ and$u_2(t)$. Control (or choice) variables. The choices made affect the value of a variable, which we will call "state" and that we will indicate with$x(t)$. We assume that the dynamics of the state variable is described by the following linear equation:

$$\frac{dx}{dt} = x(t) = a \cdot x(t) + b_1 \cdot u_1(t) + u_2(t)$$

Wherea, b_1, b_2 are parameters. (The point above the variables indicates their first derivative with respect to time.) Let also be $x_0$the value of the state variable at the beginning of the time interval in which the game takes place, that is $x(0) = x_0$. We indicate with $T$the period in which the game ends (in the case of a game with infinite horizon, it will be$T \to +\infty$). We assume that only the initial value x_0 is known by the two players, who at time0 must formulate the plan for the entire interval $[0, \mathrm{T}]$ is said, in this case that the information structure is "open-loop ", while if the players know the value of the state variable in each period (which means knowing, in each t, the entire past history of the game) the information structure is called" closed-loop ". We denote the objective functions of the two players as loss functions (i.e., to be minimized) and assume, for pure simplicity, having a quadratic functional form: at any given instant t laloss is:

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$$\frac{[x(t)^2 + u_i(t)^2]}{2}$$

$$Player\ 1: \quad Minim\ J_1 = \int_0^T \frac{1}{2}[x(t)^2 + u_1(t)^2]dt$$

$$Player\ 2: \quad Minim\ J_2 = \int_0^T \frac{1}{2}[x(t)^2 + u_2(t)^2]$$

Each player must therefore choose the path of their choice variable in order to minimize the respective function, and each is subject to the (common) constraint represented by the equation that expresses the dynamics of x. Maximum problems of this type must be solved with dynamic programming techniques. We will adopt Hamilton's technique, conceptually similar to Lagrange's technique for static constrained maximization problems. In general terms, the Hamilton technique indicates to proceed in the following way.

$$\text{x}Max/Min \quad J = \int_0^T f(x(t), u_i(t) \ldots)dt$$

$$s.v.: \frac{dx}{dt} = x = g(x(t), u_i(t) \ldots)$$

where $p(t)$it is called the co-state variable and conceptually plays the same role as the Lagrange multipliers. The conditions of the first order are:

$$\frac{dH}{du(t)} = 0$$

$$\frac{dp(t)}{dt} = \frac{dH}{dx(t)}$$

to which is added the "condition of transversality", which imposes a value equal to zero to the cost variable in the final slope:$p(T) = 0$. We will now apply this technique to make choices of the two players, in the game in question. Let's examine the case in which players compete at Nash-Stackelberg, ie there is a leading player who is aware that his choice influences the choice of the opponent (follower). Suppose player 1 is the leader and player 2 is the follower. This it means that player 2 continues to behave as in the equilibrium case of Nash-Cournot while the player 1 knows that$u_2(t)$ it also depends on his own choice, that is, he is aware of the fact that player 2 will stay on the reaction function$u_2(t) = -b_2 p_2(t)$. Therefore the follower problem (and its first order conditions) are the same as the previous case, while the leader problem must be rewritten as follows:

$$Minim\ J_1 = \int_0^T \frac{1}{2}[x(t)^2 + u_1(t)^2]dt$$

$$s.v.: \dot{x}(t) = ax(t) + b_1 u_1(t) + b_2 u_2(t) = ax(t) + b_1 u_1(t) - b_2^2 p_2(t)$$

$$\dot{p}_2(t) = x(t) - ap_2(t)$$

hence the Hamiltonian expression:

$$H_1 = \frac{1}{2}[x^2(t) + u_1^2(t)] + p_1(t) \cdot [ax(t) + b_1u_1(t) - b_2^2(t)p_2(t)] + p^*(t)[x(t) - ap_2(t)]$$

where $p^*(t)$is the cost variable that the leader associates with the dynamic constraint relative to the follower cost variable. In this case, the best conditions are:

$$\frac{dH_1}{du_1} = 0 \Rightarrow u_1(t) = -b_1p_1(t)$$

$$\dot{p}_1(t) = -\frac{dH_1}{dx} \Rightarrow \dot{p}_1 = -x(t) - ap_1(t)$$

$$\dot{p}^*(t) = -\frac{dH_1}{dp_2(t)} \Rightarrow = \dot{p}^*(t) = b_2^2p_1(t) + ap^*(t)$$

to which are added the conditions of transversality:

$$p_1(t) = 0, p^*(0) = 0$$

The second indicates that in the initial instant the follower does not react to the leader's move, that is, it expresses nothing but the asymmetry of behavior between leader and follower. As in the previous case, the optimum and transversality conditions give rise to a system of differential equations that fully describe the dynamics of the control and state variables. Note however that if the game started again in an instant following a$t = 0$: that is, it expresses the fact that there is dynamic inconsistency the optimal choices change as the horizon changes temporal considered. This shouldn't come as a surprise. From a descriptive point of view, the daily experience is full of cases of dynamic inconsistency: for example, if the government wants to incentivize investments, it must guarantee favorable tax treatments, but after the investments have been made to the government it would be better to eliminate the treatments. subsidized: the subsidized rate is the optimal strategy in a certain period after the companies have made the investments. The problems of temporal inconsistency are linked to the issue of player credibility and represent a large chapter of game theory. After this brief, but exhaustive, overview of game theory, let's move on to examine a differential game model applied to price and the associated risks.

7. Conclusion

The "game" in Game Theory is synonymous with "interaction" between subjects, be they individuals, companies, states, etc., in which the decisions of each "player" influence the decisions of all the others. The ultimate goal of game theory is to analyze these interactions between players to find a solution to the game, which is to be understood as the combination of decisions made by the players that determine an equilibrium situation called "Nash equilibrium", in which none of the players have an incentive to change their situation. This document first wanted to present the various types of games and then focus on some applications. The intent of the paper was to demonstrate how games can be a valid tool for dealing with the different economic situations in which the subject can find himself interacting. We have therefore demonstrated how the "games" in the economic-business reality can become a valid support for achieving the set objectives.

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