# Course work on game theory

Business, Customers

In the game theory, it is assumed that there are several players who are rational. They are interested in their gain in the entire process and the choices they make are geared towards their self-fulfillment. The classical example of the game theory is the prisoner’s dilemma. Two prisoners are held by security officials for a serious crime. There is no judicial evidence. Their conviction is based on both or either of the prisoners confessing to the crime. If one confesses, he gets immunity from prosecution while the other prisoner is jailed for a long time. If they both confess, they will get lesser sentences. However, if they cooperate and both do not confess they will only be imprisoned briefly. Each prisoner is at a dilemma what to do. There is a strong inclination to confess as one will get a lower sentence no matter what the other prisoner does.

There are other real life situations where the game theory is applied. Game theory is applied in fields such as social sciences, political science, law and corporate finance. The game theory features in processes such as voting, auctioning, negotiation and bargaining. It is also used in the formation of coalitions within political or economic groups.

In voting, the individuals are rational and desire certain outcomes. They have preferences on what or who they believe will be able or interested in ensuring those outcomes are achieved. They are also aware of the other alternative choices and what it will mean if those other choices are dominant. The people can choose to collaborate or cooperative in order to achieve higher votes towards the preferred outcome.

There is the application of game theory in negotiations between organizational unions and the employers. The organizational unions represent the workers and their interests. The employers are on the other side of the table. The workers are interested in better pay and working conditions. The employers are interested in making as much profit as possible. The provision of higher pay and better working conditions as requested by the workers represent costs that will go to reduce the profit. The union and the employer’s organization sits down to strategically negotiate certain outcomes. The employees want better conditions but do not want to lose their jobs. The employers do not want to concede at all however they do not want more time lost in strikes or go-slow demonstrations. There is also the cost of recruiting and training employees if they fire all the grumbling employees.

In law, litigation processes are mostly zero-sum with one client gaining and the other losing (Korobkin & Guthrie, 1997). The law system is based on an adversarial approach in the zero-game theory. Lawyers are therefore trained to be highly competitive and aggressive to ensure that their client wins. A typical case is where a patient is suing a doctor on grounds of malpractice. One of the lawyers has to win the case for his client. It is either the doctor loses his practicing certificate or he wins the case and maintains his reputation in the market place. The client on the other hand wants to win the case and even receive adequate financial compensation from the doctor or the hospital.

There are situations where there is a deviation from a zero-sum approach in the legal system where the plaintiff and the defendant solve their differences outside the court. The plaintiff is convinced to take a certain amount of settlement. His lawyer tells him that there is a probability that he may lose the case and get nothing at all. The probability of winning and getting higher cash settlement may be low. The plaintiff has to make a decision on which strategy to use. The defendant on the other hand feels that there is a high probability of losing the case and paying out more money. He hopes to settle out of court and part with less cash.

The game theory is also prevalent in sales transactions. Take an example of an internet provider and a potential customer. The internet provider can provide either high or low quality services to the customer. High quality services involve higher costs and impact on the profit. The customer has the option to either buy the product or not.
He will not sign the contract with the provider if low quality service is given. Whether the customer agrees to buy the service or not, the unscrupulous trader prefers to offer low quality service as it is cheaper. The customer suspects the trader will provide low quality services so he does not sign the contract.

In software transactions, a customer is expected not to violate the contract agreements. To ensure the buyer does not breach the agreement, the vendor would like to carry out compliance inspections. They are however costly. The vendors can either carry out an inspection or not while the customers can either comply to or violate the rules. The customer knows that the vendor may carry out inspections or not. If the vendor carries out inspections and he has violated the rules then he will be liable to pay financial penalties. The vendor and the customer have to choose which strategies they will employ.

Auction processes also use the game theory. There are different types of auctions. There is the common open air bidding where the price keeps ascending until there is no other person with a higher value bid. It is a zero sum game where only one person leaves with the product. The people place their bids only as far as they are willing to go in terms amount to pay. The buyer keeps hoping that he will have the highest bid, waiting to see the outcome when the auctioneer declares his price.

In corporate finance, there is the application of game theory in the relationship between bondholders, equity holders and the managers. The relationship between these three parties gives rise to conflicts of interests. The equity holders would be agreeable to the firm taking certain risks in investments where the returns are expected to be high. The value of their stock increases when the firm value increases.

However, if these risky projects do not pay off and the company is in a financial crisis, the bond holders stand to lose a lot since their debts will be paid off only after equity holders have been compensated. Secondly, an increase in the value of the firm does not in any way increase the debt of the bondholders. Due to this conflict, the managers negotiate with the bond holders on the terms of the restrictive covenants to know which projects are acceptable and which are not (Carlos, 2010)

# Works Cited

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