

Consumer Behaviour and Asymmetric Information Theory

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Abstract: The work reviews and analyzes the theory of asymmetric information and agent theory. The first part presents the possibility of bankruptcy or market disturbance because of asymmetric informativeness of market participants. It considers the connectivity of asymmetric information with uncertainty and “moral hazard” following market transactions in terms of asymmetric informativeness. It also explains the process of counter-selection at the market. The second part presents agent theory and its similarities with the theory of asymmetric information are stated.

Keywords: asymmetric information, moral hazard, agent theory, hidden action, hidden information

1 Asymmetric Information Symmetric Information and Counter-Selection

The classical microeconomic models in homogeneous properties suppose complete substitution, and close substitution with positive cross price elasticity of demand in differentiated properties. The consumer forms his/her preferentiality in case of differentiated or heterogeneous goods. They are based on the recognizable characteristics of properties, as area distance, pleasant seller's behavior or product quality. In these models, common and perfect informativeness of consumers and sellers about quality and other conditions of buying and selling is supposed, although it is not always so in reality. There are cases of asymmetric information and it takes a significant place in the newer microeconomic models. This work points to this phenomenon.

Asymmetric information distribution means that some sellers are always informed on the quality of goods they offer, and consumers cannot recognize the differences in quality so they cannot form their preferentiality based on the quality of goods. Offers look homogeneous to consumers, although they are conscious that products are different to quality. High costs of informativeness, in most cases, dissuade

consumers from buying information. To illustrate market functioning where there is asymmetric information, we take the market of used cars, but it is similar at the market of old houses, flats and other differentiated products. We shall explain the characteristics and market functioning of used cars (Akerlof 1970; Milde 1900).

Let us start from the following:

Quality of used cars is different, Sellers are familiar with product quality, Sellers are not willing to reveal car defects,

Consumers can evaluate only the average quality of offered vehicles, not the quality of every vehicle separately.

Consumers know that not every offered vehicle is appropriate to the highest requirements, but they are not in position to rank offered products according to quality.

Regarding to the fact that all sellers try to persuade consumers that they offer the equal (i.e. best) quality and consumers cannot recognize differences, the market will form the uniform price that will correspond to the average quality of the offered car. Consumers know that the offer also includes bad quality ("lemon" quality) and it decreases their readiness to buy. Therefore, the formed average price is lower than the price for better cars if there is no asymmetric information. This lower price divides sellers into two groups. The first group or bidders of more qualitative products leave the market of used cars (some of them will make consumers happy accepting the lower price, too). The market selects better quality. The second group remains at the market, i.e. sellers offering the cars of fair price or lower quality cars. It means that counter-selection realizes at the market.

Buying used cars above average quality will not realize because of asymmetric information. It results in quasi rent on the side of consumers and sellers. If there are many different qualities, counter-selection can develop in several steps.

In the first step, Price P1 is formed that is not appropriate to sellers of better cars so they leave the market. However, consumers are conscious that, among offered products, there are products of worse quality than Price P1 shows. It decreases readiness to buy. It forms a new, lower price P2. It is the price corresponding to the average quality of other offered cars at the market. In the second step, the owners of cars whose quality was expressed by the price P1 leave the market. Selection of better quality can last until only the worst cars remain at the market. Permanent counter-selection can cause market disturbance. If consumers were informed perfectly, there would be selling and buying car of different quality at different prices. It would enable participants to realize transferable rents.

In this way, asymmetric information can cause market collapse.

The unfavorable influence of asymmetric information can be reduced. The potential consumer can engage experts to test the quality of the car that he/she

intends to buy. On the other side, the seller can give warranty for the car. However, adding information and giving warranty cause significant costs and it is risky so asymmetric character of providing adding information can be only reduced, not eliminated. Similar asymmetric information can be seen at insurance markets in connection with the risk of insurance indemnity, for example. Here, insurance consumers, i.e. policyholders are in more favorable position because the bidders of insurance alternatives are not quite informed about the risk dimension they take insuring some clients. Of course, they buy insurance protection where the risk of insurance against damage is bigger. The risk rate of insured population is bigger than the average risk rate for the whole population. Insurance bidders cannot determine exactly risk factors for some clients, but they can evaluate the percent of risky cases and form relative high price for their services. A relative high insurance premium, together with the readiness to bear risk, dissuades persons to buy insurance where risky factors are less. Counter-selection in cases of voluntary forms of insurance appears at the market of insurance, for example, accident insurance, life insurance, full coverage for the car, and so on.

2 Asymmetric Information and the “Moral Hazard”

The problems of moral hazard at the insurance market are based on the theory asymmetric information. It means that policyholders sometimes cause damage deliberately or they do not pay enough attention to avoiding the risk. Such kind of clients means a special risk for insurance companies. The bidder cannot differentiate his/her clients; he/she cannot differentiate the premium according to the risk level. To some extent, it is also about unequal informativeness for both consumers and sellers. Regarding to the fact that such a behavior, i.e. negligent relation to damages, i.e. causing damage deliberately exists de facto, and then we have relatively high insurance premiums.

Moral hazard exists in any form of insurance, where the appearance of insured events depends on policyholders' behavior. Especially significant moral hazard is in some forms of compulsory insurance, for example, health insurance. With such kind of insurance, people with lower risk factors, have no possibilities to “buy lower degree of protection”. As they are forced to insure themselves, they are exposed to temptation to “compensate” for paying high premium, i.e. to use services of health insurance even when it is not necessary. The general “boom of costs” in health services and withdrawing premiums of compulsory health insurance can be partly explained by the factor of “moral hazard”. Introducing policyholders' self-contribution, i.e. decreasing premiums or returning part of it if insured events do not appear, in principle it can influence the behavior of consumers and decrease moral hazard.

3 Agents Theory and Asymmetric Information

There are frequent the so-called relations of agents as the institution of coordination in contemporary conditions, both between participants on the opposite sides of markets and within firms and cooperation. The following table gives several illustrations:

TABLE I

| Principals | Agents |
|--|--|
| Hidden | Actions |
| Patient Owner of the firm Manager of the firm Principal: Investor Tax payer Owner of the car | Doctor Manager of the firm Employed in the firm Contractor: Craftsmen Tax adviser Workshop |
| Insurance bidder | Policyholder |
| Hidden | Information |
| Management of the corporation Buyer of the used car | Sales department Seller of used cars |

In the contractual relationship between the principal and the agent, the agent's decisions exert influence on both participants. The principal gets the results of activities in the form of usefulness, income or profit, while the agent receives remuneration for his/her activities, according to the rules agreed in advance.

According to Arrow (39, 1985) the principal-agent relationships are characterized by the following:

The principal cannot control directly and completely the agent's activities (the hidden action), or

The agent is familiar with basic aspects of his/her activities that are unknown to the principal (the hidden information)

Besides, it is characteristic that the attained success is not the result of the agent's work solely but it depends on other factors, randomness, for example, so the principal cannot completely estimate the quality of the agent's work.

The Table is divided according to the characteristics a) the hidden action, and b) the hidden information. We shall explain both variants on one example.

The patient playing the role of the principle does not have medical knowledge to estimate well if the doctor has chosen the appropriate therapy. On the other side, the result of the doctor's activities as an agent, i.e. the successfulness of curing the patient can depend on the patient's psychophysical constitution and meteorological circumstances that, from the aspect of therapy, have the character of chance.

The central corporative administration as a principal has less insight into demand forming than the department of realization having the role of the agent. Activities of the sales sector depend on unexpected demand fluctuations, too. The cited examples point to the variants of asymmetric information between the participants at the market and non-market transactions.

The insurance bidder, in principle, realizes profit for the policyholder's activities, i.e. by means of paid insurance premiums. The policyholder as an agent, for return favor of his/her activities (payment of insurance premium) gets the protection provided by insurance, i.e. the insurance bidder. The principal, therefore, pays the agent (the policyholder) taking risk on himself. In case of damage, he pays compensation for damage to the policyholder. In this case, it is the hidden action because the insurance company cannot estimate completely the relevant fact, for example, if the damage was done intentionally because of the policyholder's negligence or it happened unexpectedly. "The moral hazard" that the insurance bidder takes over is the possibility of the hidden action of the policyholder.

The buyer of the used car, in principle, realizes profit by the activity of the seller-agent who delivers him/her the car. The seller, as a return favor for selling the car, gets the selling price. Cost price is done by the idea formed in the buyer who watches and tests the car. The base for the previously explained negative selection at the car market makes hidden information about the shortcomings of the car, the facts that, of course, will be suppressed by the seller.

The question of group production, i.e. the teamwork, falls into the same category of problems of agent theory (Alchian, Demsetz, 1972). The total teamwork production is bigger than the prime sum of performances that the members could produce themselves because of labor division. Contribution of some members to the group performance cannot be exactly determined and it opens the possibility of shirking by some members of the group. Individuals, without fear, can reduce their efforts in the process of the teamwork. Namely, it would be too expensive to control every laziness. If individual contribution to the group result is not easy to measure, then in remuneration we must start from the group result. According to the cited authors, only the engagement of the monitor, i.e. the watcher could provide a perfect organization of the group work who would get the rest of the result after remunerating the team members, i.e. he would get the so-called "residual claim". The cited conception, expressed in the language of agent theory means that the monitor as the principal is not able to see completely the hidden actions of shirking the team member, i.e. the agents, thus, in remunerating the

results of the team, we cannot start directly from the individual performance of the members. Overall, the illustrated relations of agents in Table remains at the asymmetric level of information of the principal and the agent.

Overall, we could conclude the following: if the principal had insight into the activities and information of his agent without special costs, and the agent's work were not followed by uncertainty, i.e. the state of perfect informativeness, then no freedom of the agent's activity would exist. Instead of the principal-agent relationship, there would be a neoclassical situation of the firm theory. The agent, as labor for rent and remuneration for his input, would do his work under the direct control of management as the principal. The substance of agent theory represents determining the contractual frameworks of relationships of agents in order to minimize the loss of the principal because of the impossibility to get free information and uncertainty of the agent's results of activities. In essence, we should minimize the difference between the total usefulness, income or profit of the principal under conditions of perfect information as the best solution and usefulness of income or profit generating from the application of the relation as the second best solution. The difference is called the loss or agent costs, and the contract between the principal and the agent should plan so the agent costs can be minimized (5,157).

To present mathematically the previous requirement, i.e. minimization of agent costs, K. J. Arrow designed the agent remuneration function so the principal can maximize the expected value of his total usefulness. According to this function, the agent's income is determined by his quantified result. The results of the agent's work include two components: the agent's efforts of activities that cannot be directly estimated and unexpectedness. The principal is not always available to separate the effects of these influential factors on the results of the agent's activities (Arrow's function of mathematical interpretation will be omitted now).

By defining the remuneration function, the problem of agents seems theoretically solved. It stirs the agent to maximize the value of his usefulness, and based on it, the principal will also maximize the value of his usefulness. To make decision of the problem means the allocation of gross income that depends on the unexpected factors between partners by means of supposed functions of risk and usefulness. The decision, therefore, includes the elements of stimulation and the elements of risk allocation. The problem can be defined as "incentive decision and risk allocation".

Beside the cited, professional literature considers the following variants and modifications of agent theory:

There is a supposition of the hidden information – instead of the hidden action.

The principal does not form the function of remuneration but it is formed as the results of negotiations and bargain.

The principal has incomplete information about the agent's devotion to his job, also in case of hidden actions.

Existence of more principals and agents is possible.

Agents-principal relationship does not take the long-term character.

Both partners do not avoid risk in the same way. The principal is usually indifferent to risk.

Of course, discussion of the cited variants of agent theory would exceed the framework of this work. Instead of studying it, we shall say several words on the possibilities of applying the function of remuneration.

We can conclude that solutions of mathematical specific agent models in professional literature present more complex functions than the forms of remuneration in practice. In other words, theoretically the best solutions, even taking into consideration simplifies suppositions, are not in accordance with the simple solutions in practice. Some forms of agent remuneration, for example, doctors and tax advisors, are not based as on the established performance as on convincing explanations of agents that the principal cannot check (arrow, 1985, 49). Illusory ineffective practice is not usually the result of insufficient skillfulness of participants. It is probable that the social hierarchy hides the economic aspects of relations between agents. On the other side, transactional costs of the complex contractual regulation of both bargain processes and harmonizing would be too high.

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