

Government failure vs. Market failure. The implications of incomplete information

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Abstract. *There are many situations from the economic, social, personal fields when an individual feels the need to take a decision, sometimes under uncertainty or in risky situations and adding the imperfect information, these can yield to wrong decisions and mainly, some individuals can incur additional costs.*

Moreover, it is very important that these circumstances -when one part can have more information than the other one- can be managed because the problems regarding moral hazard and adverse selection can worsen off the part with less information. Furthermore, the lack of information plays an important role in both market (externalities, information asymmetry) and government intervention contexts (some group of individuals have more information than the others).

Nevertheless, starting from these extremely important ideas, this paper seeks to treat this subject in a comprehensive manner and to provide the reader a general overview about these topics.

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JEL Classification: G14, G18.

Market failure

The Market failure represents the situation when the market does not succeed to allocate and use the resources efficiently and the economic reality does not correspond to the Pareto efficiency. The basics of welfare economics were set by the neoclassical school and represents a type of liberal intervention (with Knutt Wicksell as exponent of the Sweden School) which analyses the failure of the market, having as a starting point of both the theories of general equilibrium and partial equilibrium.

This failure can be observed through the limited capacity of the firms from the market (that take part of an economic system) to promote the social activities or to correct the potential dysfunctions. Therefore, there are two reasons of the market failure that stand out:

- The dysfunctionality through the structure of the market: the condition for a competition with high number of producers in a determined field is not guaranteed and this yield to the lack of concurrency in that area.
- The dysfunctionality through the structure via the price- mechanism: it may appear when the system of prices collapses because of the advantages but also of the costs from the production and consuming.

a) Monopoly

It emphasizes an example of a market failure because it implies the existence of a higher price than the one applicable on the market and the level of production is also lower than the one which can ensure an efficient process of consuming the resources. Moreover, monopoly is known as a lack of success from the competitive market, because one condition for the market to be efficient is that the bidders act as price-takers.

For consumers, the situation where monopoly exists is an undesired one, as they can buy less goods and pay for each good a higher price. However, situations with pure monopoly are very rare nowadays. The most cases of monopolies continue to exist due to some government regulations. For instance, a pharmaceutical company discovers a new medicine can obtain the full control on a particular medicine on the long run through the patent it receives. Another important example is the one which refers to the company that provides potable water in a region. For both examples there exists only one seller of a good for which it does not exist a close substitute. Nevertheless, Microsoft is an example of a company that kept its status of monopoly on the market without government intervention, but this because the company invested significant amount of money in research and development and it also adopted aggressive market strategies against the main competitors.

All in all, Paul Samuelson believes that firms which obtain the main control on a market must be aware and they must observe constantly the actions the potential competitors make. Therefore, pharmaceutical companies will observe if a competitor from the same sphere produce a new medicine or in the Microsoft case, Bill Gates will be able to notice if another company tries to take the leading position from his company.

b) Information asymmetry

Information asymmetry represents an example of market failure, because consumers and producers are not correct and complete informed regarding the circumstances that the market faces and this fact can yield both parts to losses. This problem may appear either in the public sector or in the private sector. A condition for the market to be efficient implies that individuals can have free access to the available information.

However, producers can hide relevant information about the goods they sell or services they offer. For instance, if in the telecommunication market there exists a company whose prices are very low, but which has high levels of radiation then it is likely for that firm to hide this aspect and hence, the lack of information can affect the potential consumer of that good or service negatively. At this stage, the company may assume that consumers can be tempted to buy their lower-price goods, without knowing the effects of buying that good.

Moreover, one can affirm that from the consumers point of view there are two types of incomplete information: moral hazard and adverse selection.

Firstly, moral hazard emphasizes the situation when a part of a contract modifies his behavior immediately after the contract was signed and as a result the other part can be worse off. An appropriate example is a situation when one refers drivers who possess an insurance (they also tend to become less cautious after they possess the insurance).

Secondly, firms in order to protect themselves against the situations of moral hazard they implemented the concept of deductibles and these imply that the insured individual pays a fixed amount of money, while the insurance company pays only the difference.

If we consider the problem of moral hazard in the financial system, it is well known that banking crisis are extremely bad. In the last two decades, their frequency rose exponentially. These crisis affects not only one sector, but also the whole economy. In the 19th century, most of the downturns were caused by the fear that the financial system faced. The prudential regulation is expected to protect the banking system from such situations and in a traditional way, this involves a mixture of supervising all the individual transactions, the requirements that must be respected in order to obtain the finance of capital and the entry barriers. For instance, many countries from the East Asia implemented restrictions for the real-estate borrowings.

From the adverse selection point of view, this may appear at the time one part of a contract has information the other part cannot have access and the latter may support higher costs. An important example to mention is represented by the individual who plans to fire his own house and for this reason he decides to buy the best insurance against fire incidents. If in the moral hazard case the individual changes his behavior after the contract was signed, in the adverse selection scenario this appears while the contract is being signed. Furthermore, Lawrence M. Ausubel in his report entitled "Adverse Selection in the Credit Card Market" considers that that the steak in such an empirical exercise is very important. It is usually believed from the evidence that we may come to any conclusion from a specific model of the incomplete information. If one can show that adverse selection can be observed as a true phenomenon on the credit market, then it can

be considered that at least one component of the theoretical developments from the last three decades has a true empirical basic. Additionally, there are also two others type of markets where the existence of the adverse selection was explored. Starting from the origins of the moral hazard and adverse selection from the insurance market, it is not surprising at all that the adverse selection exists on the health insurance market, but there are also recent evidences of other type of insurances. In addition, because of the important influences of the model created by George Akerlof on the Market of Lemons there are significant empirical studies that catch the presence of the adverse selection on the second-hand vehicles market.

The example offered by George Akerlof stresses the essence of the problem. It is known that there exists a difference of price between the new and old vehicles. There may exist the possibility that the new is performant or not and the same applies to the second-hand vehicles. The potential consumers that exist on this market buy a new car but without knowing for sure if the respective car is good or bad. However, they know that the probability for the bought car to be performant is x and the difference, $(1-x)$ is the probability for the vehicle to be bad. On the long term, the owner of the car will know exactly the true quality and he may set another probability in the case his car is not performant. One can observe that in such case the problem of information asymmetry appears as well, because the car sellers have much information about the quality of the goods they sell rather than the potential buyers. Nonetheless, both good and bad cars have the same price, since the consumers do not distinguish between the two type of vehicles.

c) Externalities

Externalities appear when the actions made by an individual affect the utility of another person in a negative way. Positive externalities are benefic for consumers, while the negative ones yield people to less favorable situations. For instance, improving the system of security of the houses of neighbors represents a positive externality, while painting the house of a neighbor in pink emphasizes a negative externality.

In this case, the market failure comes as a result generated by the actions made by a producer or consumer and brings some costs or benefits for tertiary economic agents.

Alfred Marshall is the one who introduced the notion of externality in the last century. Marshall believed that externalities depict a picture of the independency of the economic agents, taking into consideration the way the resources were allocated.

The analysis of externalities can be made via the process of consuming or producing. The externalities in consume may be positive (the investment in education or innovation) or negative (drugs consuming). In production, we distinguish two type of externalities as well: positive (the construction of industrial robots) and negative (pollution).

There are two solutions suggested for a correct gestion of the externalities. On the first hand, Cecil Pigou emphasizes that the government should intervene by applying some taxes in order to eliminate negative externalities and offer subventions for positive externalities. On the other hand, Ronald Coase does not consider benefic the government intervention and he stresses that the solution is a good specification of the property rights.

d) Public goods

They can be used by the whole society and represent another example of the market failure, as in this case it cannot be well defined the property rights. Public goods have two important features: non-excludable (property which accentuates that individuals of a society, no matter if they paid for that good or not, they can not be excluded from using that good; for instance, even if the citizen of a country did not pay his taxes he can still benefit from the national security) and non-rivalrous (characteristic that emphasizes the fact that a new consumer of a good or service can not affect the possibility for another person to use that good or service; for example, in the situation when an individual chooses to walk in the park this does not imply that another one cannot have that walk as well).

Government failure

Following our previous discussion, we observed that free markets may yield to failures. Hence, a solution is needed and that is the government intervention in order to correct the weaknesses the market exhibits. The purpose of the government is to eliminate the failures, the last goal being represented by the growth of the society's wellness. Furthermore, the intervention of the government intends to protect the life of the individuals, the increasing growth of the economy rate and the stabilization of the economy. However, reality proved that the actions of the state do not always yield to the expected results, one reason may be that the government is compounded by different groups of interest that follow their own interests without taking into consideration the general interest of the society.

a) The justification for government intervention

This subject was one of the most controversial, with critics who argued that regulations may interfere with the market efficiency and advocates who considered optimal the inclusion of such regulations, justifying that a set of well-defined regulations yield to an increasing level of the market's efficiency.

It is widely considered that Adam Smith pointed out that markets are efficient by themselves. Additionally, Debreu and Arrow demonstrated the common sense in which this was true (Pareto efficiency implies that an individual can be better off without making somebody else worse off), and the circumstances under this assumption was true (that is, perfect competition and neither public good nor externalities). However, Stiglitz and Greenwald argued that whenever information asymmetry or incomplete markets exist, there may exist the presumption that markets do not respect the Pareto efficiency condition. Moreover, Joseph Stiglitz in his paper entitled "Government Failure vs. Market Failure: Principles of Regulation", provides the example of the financial crisis that took place in the USA in 2007 in order to stress the importance of regulations in such an important situation. At that time, if the Government did not intervene, over two million of American citizens would have lost their jobs together with their lifetime savings. That is, the government intervention is needed.

b) Regulations and other types of intervention

Critics of regulation believe that the main goals of regulation can be obtained in a better way and at lower costs by using interventions based on the market (for example, subsidies and taxes). If a negative externality is caused by smoking, then an optimal solution is to tax smoking. Moreover, if greenhouse gases yield to the problem of global warming, is desired to apply a tax to the greenhouse gas emissions. One may argue that another feature which can recommend price interventions is that they are general and imply low costs of transactions. Surprisingly, the research from the last 25 years found out some limitations. That is, in situations with asymmetric information, so the markets do not conduct to Pareto efficient results also suggest that price interventions can not be considered as suffice.

Additionally, in the presence of incomplete information, the incentive schemes that are considered as optimal are also non-linear (hence, these do not take a specific form of price intervention) and can also include some constraints.

c) Examples of regulation instruments

The first instrument to mention is the one that refers to information disclosure. Market forces do not necessarily yield to the information disclosure, so there is a solid reason for the existence of some requirements. Markets cannot work well with incomplete information and that is, requirements which lead to an improved set of information can also conduct to a better allocation of resources. However, this process may imply more issues that one might have considered. Disclosures can be done in such ways that do not make individuals to be conscious about the risks they face directly (this is also one of the main reasons why cigarette warnings were tightly regulated).

The second one is about restrictions which stresses that companies cannot collude in the process of price setting or taking part of any other type of cartels. Similar issues have arisen in anti-trust. But some firms have been very innovative in applying some strategies in order to diminish the competition. If regulators apply restrictions on some behaviors, monopolies will succeed to find ways of behaving in the spirit of anti-competitiveness, but which are consistent with the regulations. If regulators impose restrictions on some behaviors, monopolies will innovate to find new ways of acting anti-competitively that are consistent with the rules (but for obvious reasons they are against the spirit of that rules).

Nevertheless, mandates grew in popularity because they may lead to achieving the public purposes without involving any financial costs. In addition, some mandates can be viewed as efficient methods for solving the important problems of the society such as externalities.

d) Government failure

This section sought to emphasize the need of the government intervention given the market failures. Unfortunately, for some reasons (the rigidity of regulations, the interests of some groups, the behaviour of politicians and bureaucrats in the process of rent-seeking) the government actions do not lead to the desired outcomes and this stresses the failure of the government.

Government failures can be explained through the next reasons: the market's capacity to clear themselves (but in this scenario one may argue that the government intervention is not needed anymore), the less ability to forecast or the inflexibility and conflict of interests of some groups that are permitted to act as they can achieve some economic advantages.

From the mathematical point of view, the government failure emphasizes the situation when the benefits from the state intervention are less than their direct and indirect costs. That is, the measures applied by the government do not yield to neither eliminating the market failures nor to the efficient allocation of resources.

The case of government failure brings to discussion one fundamental problem, if it is really needed to depend on the government actions in order to correct and eliminate the market failures or not. The answer of the economies is neither affirmative nor negative, but that it depends whether the benefits of the applied measures are higher than the costs.

Empirical evidence

The main goal of the study case was to emphasize on the discussion from the theoretical part regarding incomplete information through an empirical approach. That is, we sought to prove that in most of the cases there exists a difference in the decision-making process between the well-informed individuals and those who received the information asymmetry.

Therefore, we created two surveys that were viral on the internet from the 07th of June 2018 to the 14th of June 2018. The first questionnaire, entitled "The efficiency of an individual in the decision-making process" included the incomplete information and the second one, named "The way individuals choose in the contemporary society" captured the complete information. The reason we named the surveys in such a way was mainly in order to avoid the possibility of vitiating the answers.

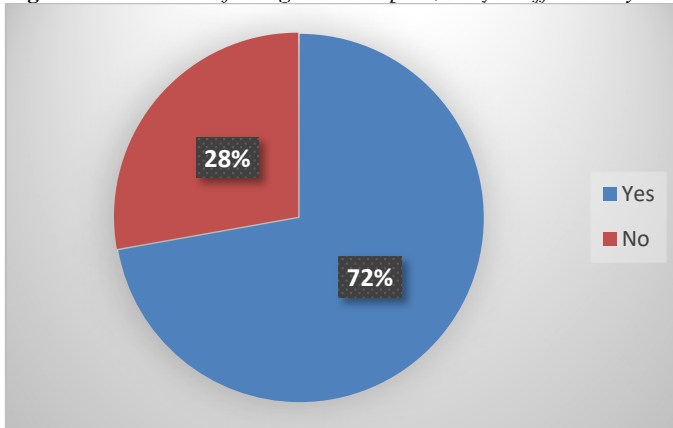
Moreover, the sample size was characterized by 108 respondents and they were divided into two "groups of interest" as well. On the first hand, the former group, the "experimental group" was split itself in two other subgroups: 36 of the respondents representing the first subgroup received the survey containing the information asymmetry and the difference of 36 individuals (the second subgroup) had to answer the questionnaire with full information. On the other hand, the latter group, the "control group" included 36 respondents who received simultaneously both surveys with incomplete and complete information. Furthermore, our analysis focused on the individuals from the "experimental group" as we wanted to observe whether there exists a difference in their answers depending on the complexity level of the information they received, while the role of the "control group" was to examine the impact on their decisions determined by the dependent variable, that is, time.

Additionally, the questions from both surveys were based on the pharmaceutical industry and healthcare sector because these are two extremely important areas for all individuals. Nevertheless, all the questions were created together with specialists from these fields.

Next, we would like to present (by comparison) the main results we observed from the empirical study case. Firstly, there will be presented the results from the “experimental group” followed by the representative outcomes of the “control group”.

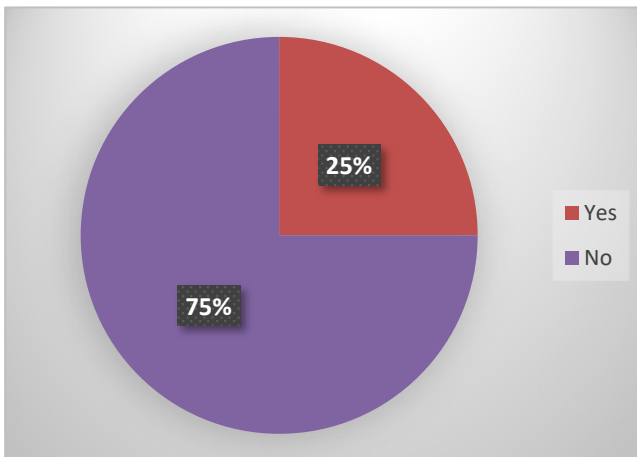
1. “Experimental group”

Figure 1. *In the case of being in the hospital, did you offer money to the medical staff?*



Source: graph made by the author in Excel based on the survey’s outcomes.

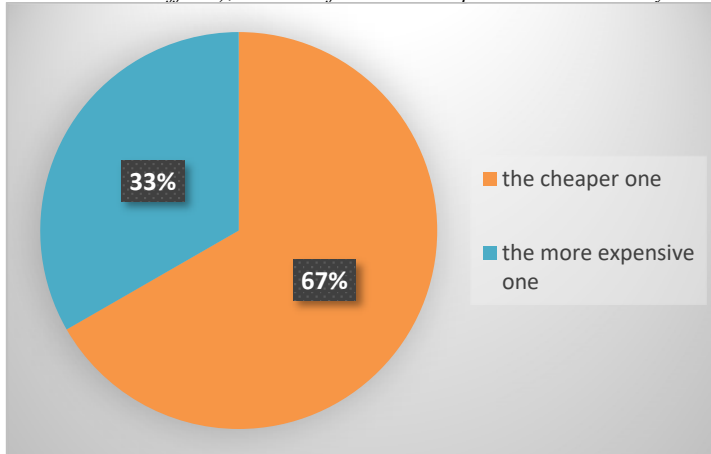
Figure 2. *In the case of being in the hospital, did you offer money to the medical staff as you were forced to do so (in order to receive the special attention you needed)?*



Source: graph made by the author in Excel based on the survey’s outcomes.

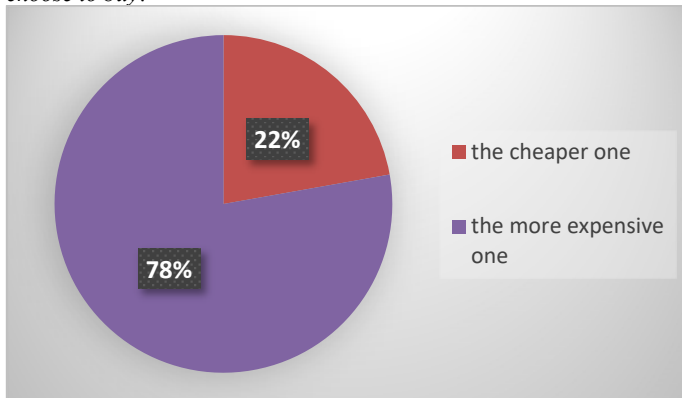
Observing these two plots one may show that in the first experimental subgroup 72% of the respondents answered that they offered money to the medical staff when they were in the hospital, while the difference of 38% of individuals reported otherwise. However, the second experimental subgroup which benefit from complete information offered answers that are significantly different. In this scenario, only 25% of them answered “Yes”.

Figure 3. Assume that you found out that you are suffering from an urologic disease and there are two medicines (presented by the doctor) available which contain the same information in the leaflet (the same action and side effects), but one of them is cheaper. Which one will you choose to buy?



Source: graph made by the author in Excel based on the survey's outcomes.

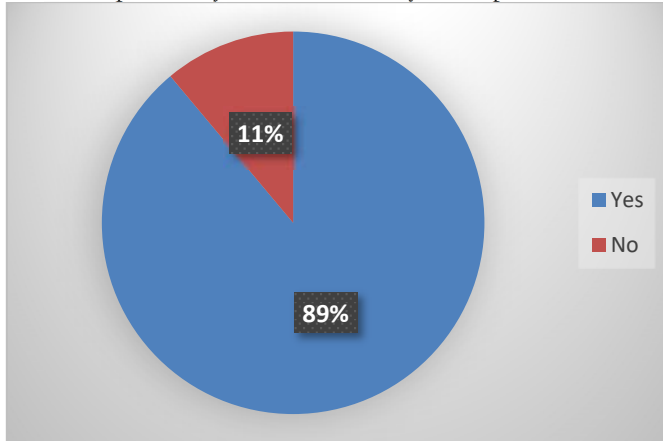
Figure 4. Assume that you found out that you are suffering from an urologic disease and there are two medicines (presented by the doctor) available which contain the same information in the leaflet (the same action and side effects), but one of them is cheaper as it is resulted from plants extract nutrients for which a medical opinion from the National Agency for Medicines and Medical Devices is not needed and it does not have clinic trials that can justify the safeness and the efficiency use in that pathology. Which one will you choose to buy?



Source: graph made by the author in Excel based on the survey's outcomes.

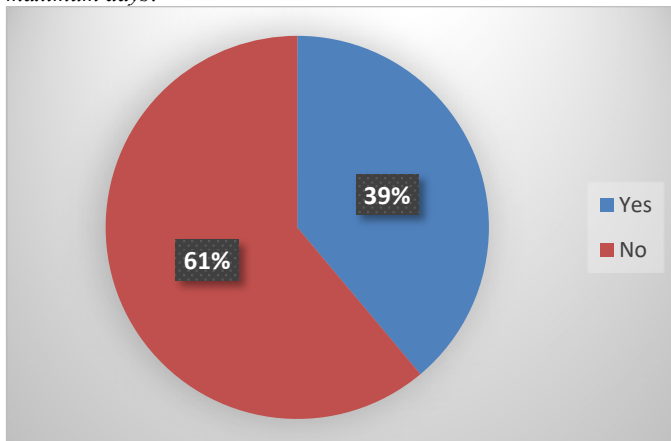
From Figures 3 and 4 one may observe another difference between the less-informed subgroup and the well-informed one. That is, in the first scenario (of the subgroup that received the questionnaire with incomplete information), more than half of the respondents (67%) preferred the cheaper medicine and 33% of the individuals chose the medicine that cost more. However, differences are visible while analyzing the second plot. In this case, 78% of the individuals from the second subgroup would buy the more expensive medicine and 22% of them were thinking about buying the more affordable medicine. Therefore, we observe another case where the lack of information plays an important role in the decision-making process.

Figure 5. You are on the point of leaving the hospital and the doctor informs you that you can benefit from sick leave up to 21 days. In this case, will you accept the maximum days?



Source: graph made by the author in Excel based on the survey's outcomes.

Figure 6. You are on the point of leaving the hospital and the doctor informs you that you can benefit from sick leave up to 21 days, but you will be paid with 75% of your base wage. In this case, will you accept the maximum days?

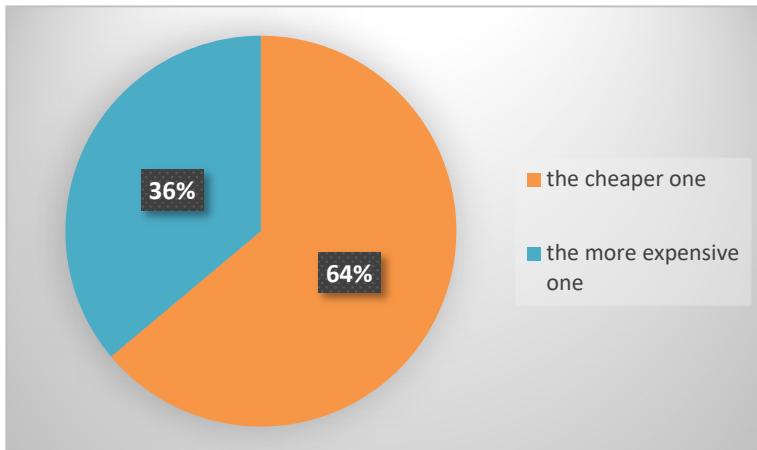


Source: graph made by the author in Excel based on the survey's outcomes.

Moreover, when the respondents from the first experimental subgroup were asked what they would choose between the maximum period of sick leave or less, 89% offered a positive answer, while 11% did not find the maximum period feasible. Taking into consideration the second experimental subgroup the answers are quite different. That is, 61% of the asked individuals refused the 21 days of sick leave, whereas less than half of the respondents (39%) still accepted the longest period

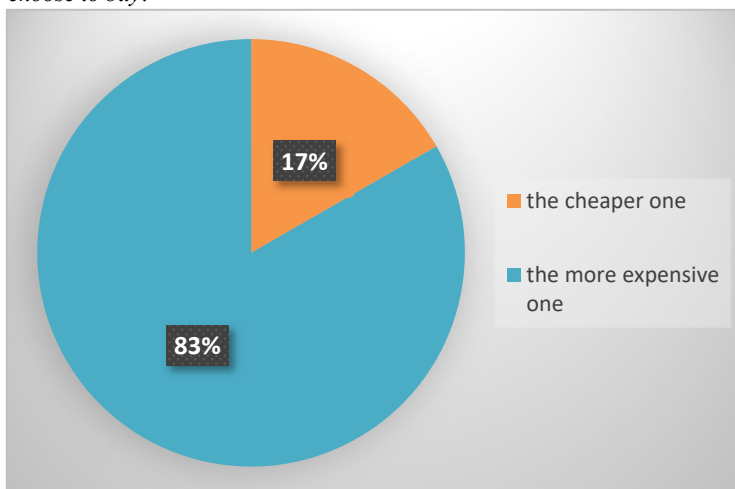
2. "Control group"

Figure 7. Assume that you found out that you are suffering from an urologic disease and there are two medicines (presented by the doctor) available which contain the same information in the leaflet (the same action and side effects), but one of them is cheaper. Which one will you choose to buy?



Source: graph made by the author in Excel based on the survey's outcomes.

Figure 8. Assume that you found out that you are suffering from an urologic disease and there are two medicines (presented by the doctor) available which contain the same information in the leaflet (the same action and side effects), but one of them is cheaper as it is resulted from plants extract nutrients for which a medical opinion from the National Agency for Medicines and Medical Devices is not needed and it does not have clinic trials that can justify the safeness and the efficiency use in that pathology. Which one will you choose to buy?

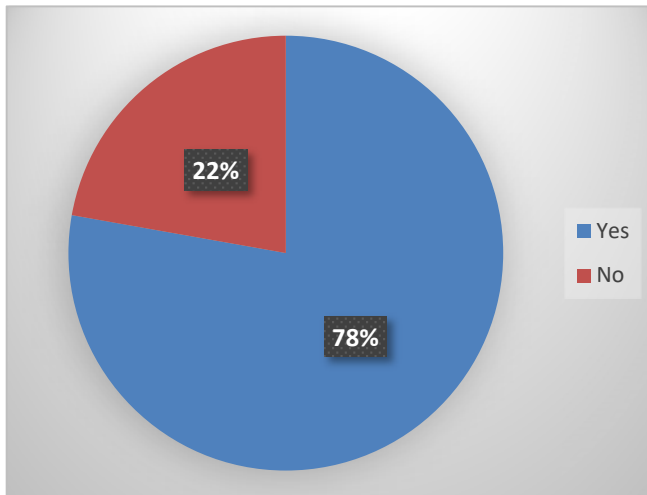


Source: graph made by the author in Excel based on the survey's outcomes.

Analyzing the results from Figures 7 and 8, one may observe that there is still going to be a difference in terms of the answers provided by the members from the control group (when they have complete information vs. when they know less than needed). At this stage, while answering the questionnaire with incomplete information, 64% of the interviewed people would choose the less expensive medicine and 36% of them would

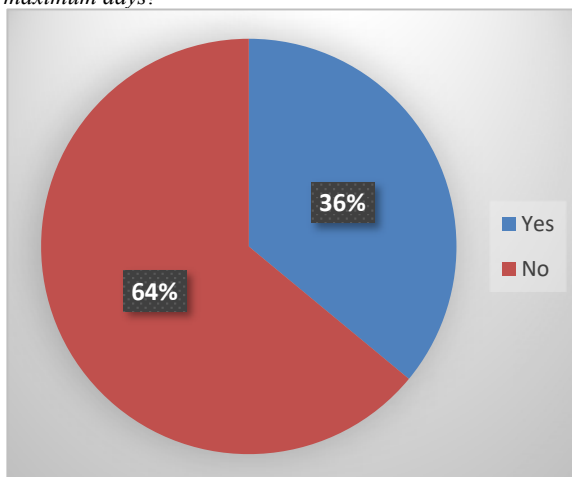
opt for the more expensive one. However, while answering the survey containing the full information, 83% of the respondents were sure that they intended to purchase the medicine with the highest price and 17% were considering buying the cheapest medicine.

Figure 9. *You are on the point of leaving the hospital and the doctor informs you that you can benefit from sick leave up to 21 days. In this case, will you accept the maximum days?*



Source: graph made by the author in Excel based on the survey's outcomes.

Figure 10. *You are on the point of leaving the hospital and the doctor informs you that you can benefit from sick leave up to 21 days, but you will be paid with 75% of your base wage. In this case, will you accept the maximum days?*



Source: graph made by the author in Excel based on the survey's outcomes.

Nevertheless, the results observed in the Figures 9 and 10 conclude our claim regarding information asymmetry and that is, the situations with incomplete information may conduct to initial wrong decisions. As we can observe from these plots, 78% of the respondents chose the maximum period in the first case (with the survey containing incomplete information), whereas 22% of the persons were concerned and they wanted to

benefit from less than the longest period of sick leave. In the second case (with the questionnaire including perfect complete information) only 36% of the individuals opted for the longest period and 64% of them refused it.

Conclusion

However, there is still going to be a controversy between the advocates of government intervention and those who believe in free market clearing. On the first hand, there are advocates of the power of market to clear itself who believe that the level of inefficiencies is insignificant (even if there is not a strong prove of this statement) and most of the free market's advocates consider that the government intervention only leads to worse outcomes. On the other hand, the sympathizers of state intervention find this beneficial given the fact that markets were unable to clear themselves.

Furthermore, incomplete information is a very important issue that can be observed in different areas and every individual may have at some point the chance to keep the information for himself as an advantage. For example, in the financial system banks that offer loans may face the problem when some borrowers are not able to pay their debts and this may happen since the commercial banks did not have at the very beginning the complete information about the characteristics of such individuals. Nonetheless, information asymmetry leads to undesired results and situations, when some individuals are worse off.

The main results from the surveys had confirmed what we initially claimed in the theoretical part, that is, information asymmetry may yield to some costs for the less-informed part. It can be observed from the figures that in all the cases presented above the respondents changed their initial decisions when they were fully informed. The problem of incomplete information is still going to occur in many areas (as it is unavoidable), but one solution that may help individuals is to try to find out as much information as possible, from different credible sources, before taking any decision.

Generally, Darwinian natural selection may not work. Rather, like Gresham's law – claiming bad money is conducting good business-wrong firms forced firms more conservative to follow similar, reckless investment strategies. More prudent businesses could have done better in the long run but could not have survived to take advantage of the long term.

Our financial system has failed in its core missions – capital allocation and risk management – with disastrous economic and social consequences, not only on the mismanaged capital in the past, but also on the enormous disparity between the potential and the current GDP in the years to come, in the amount of trillions of dollars. Unfortunately, the wrong economic theories have helped and urged both the public sector and the private sector to pursue policies that almost inevitably led to the current calamities.

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