

## WAYS TO APPLY BEHAVIORAL ECONOMICS INTO ORGAN DONATION AND TRANSPLANT SYSTEM IN BULGARIA

Tsvetelina Yordanova  
University of Forestry, Sofia, Bulgaria

### Abstract

The very first concept of this paper was to be prepared questionnaire in order to be explored the attitudes of Bulgarian people about organ donation. The idea has come naturally because in the country there has been very little understanding of the dimension of the problem. This combined with the constant distrust of the health care system set Bulgaria on the last place in Europe by organ donors per capita. Once the survey has been finished the need of critical review was mandatory. However, firstly it will be discuss the idea behind behavioural economics. Secondly, it will be considered the concept of default options in the system of organ donation. In case of Bulgaria it will be provided some information about the current legislations and organ situation in the country. And last but not least will be presented the final results of the inquiry.

**Key words:** rationality, behavioural economics, survey, Bulgaria, Organ donation.

**JEL:** I12.

### Behavioural economics

Essential part of understanding behavioural economics is to understand what was important in economics according to economists and what was important to psychology according to psychologists. Moreover, it is necessary to show how the two disciplines understood each other and how they come to interact. Notwithstanding, they exist alongside each other and exchange results, instruments and ideas. Economics and psychology find it relatively easy to talk to one another, especially those representatives of two cultures who operate in each other's vicinity. Both are also affected by the same challenges of the larger world and may it times come up with responses and adjustments that are very much alike. Yet despite all this exchanging and sharing of results, instruments and ideas, i.e. despite all their local coordination, they remain two clearly distinguished distinguishable sciences. Economists and psychologists have a lot in common, and yet are very different [1].

Interest in behavioural economics has been stimulated by accumulating evidence that the standard model of consumer decision-making provides an inadequate positive description of human behaviour for some question. According to the evidences (and contrary to the standard economic model), individuals are bounded in many dimensions, in particular in their rationality, self-control and self-interest. Nonetheless, beyond this trilogy of bases for deviations from the standard model, economists are exploring additional psychological and sociological factors that shape economic decision-making. They are also examining decision processes to view and model the black box of the human decision-making: very recent work in neu-

roeconomics focuses directly on the question of how decisions are made [2].

The need to development the science and go beyond old-school thought of human rationality have brought economists to field of other branches of social sciences. Nowadays it comes naturally to us to arguing about our logical nature, but it has not always been like that. Now we have powerful computers, educated scientists and societies who believe in pure political and financial sense. Does it make us better? The answer may not be accurate. The original idea of any science is to pick up all the pieces of the puzzle and to give an answer of the arising questions. Furthermore, it has duty to work hard and make people's life better in of institution, health and education. This makes behavioural economic so valuable. Seeing economic questions in glasses of psychology and building models consistent with human irrationality has completely transformed the origin of economic thought. It is no longer beneficial just to give any explanations and predictions, concerning economical activities but to do it respect of human nature.

### 1. Default options in organ donor system

There are number of explanations why people tend to exhibit inertia around default options. Traditional economic theory suggests that the default effect could be accounted for by the presence of switching or transaction cost. These costs do not have to be monetary in nature but can also include time and effort that individuals have to spend to switch away from the default. If the costs of switching are large enough, individuals will actually prefer not to switch from their default option. Inertia around default options could also be rational be-

haviour if individuals believe the default option is an implicit recommendation by the person who chose the default. For example, an individual may view a default health plan choice as an implicit recommendation from her employer [3].

However, Judd B. Kessler and C. Yiwei Zhang claim that the default effects are often present when the apparent cost to switching are negligible and the likelihood of the default being viewed as an implicit recommendation is small. An alternative behavioural explanation for such an effect is the bounded rationality of the individuals. For example an individual may be enrolled in the same prescription drug plan as the previous year (the default option) because after the initial enrolment period, he paid little attention to any changes circumstances that may induce him to switch. Because of this inattention, the individual fails to make a conscious choice and so is automatically enrolled into his plan from the previous year. Alternatively, people may simply exhibit status quo bias, a preference for the current status quo independent of whatever the best option is, or omission bias, a preference for inaction over action. Any combination of these explanations could lead to inaction and thus the observed default effect. Regardless of what the true underlying mechanism is, however, it remains that defaults can have significant influence on individual choice [3].

Applying behavioural economics into organ donation, using agent's inertia around defaults poses some question of great importance. From one hand researches relying on individual's status quo bias tend to deprive people from their real choice by using default options. Peoples' concerns are often underestimated, replaced by someone else's recommend choice. From another hand by giving three and four different options without defaulting any single one, agents' decision got worse, because he may be got confused. The quantity of the alternative is not guarantee for successfully decision making. Moreover, it may have the opposite effect. However, some critiques content that the evidences do not support this because of the lack of conformation.

## 2. Current donor situation in Bulgaria.

Before we start to examine the organ system in Bulgaria, we need to introduce the different option of consent in organ donation.

Organ Donor Taskforce presents an independent report about the potential impact of an opt-out system for organ donation in the UK. Options of consent being used in the world are as follows [4]:

1. A "hard" opt out system. Medical staff can remove organs from every adult who dies. Individuals have right to opt out. The so

called "hard" system does not allow relatives to change or take the final decision.

2. A "hard" opt out system that excludes special social groups. Medical staff can remove organs from every adult, who dies unless an individual has opted out or belongs to the certain religious or social groups.
3. A "soft" opt out system. The so called "soft" opt out has been widely used. On the one hand, medical staff does not need to take permission from the relatives. They can remove organs from every adult, who is found with brain death, unless the individual has registered to opt out or the relatives tell the doctors not to take the organs.
4. A "soft" opt in system. This system gives right to doctors to remove organs from adults, who have opted in. It depends on the individual, whether or not to sign for it.
5. A "hard" opt in system It is individual decision. Person can opt in. Doctors can remove organs only from opt in donors. Relatives are not able to oppose the person's wishes.
6. A choice to opt in or opt out. Two cases: people can register to opt in or opt out. However, in some countries they must register their choice to opt in or opt out.

Since 2007 in Bulgaria has been in force the so called "soft" opt out system. If there is donor situation, the medical authorities can remove organs from every adult person, who has not opted or whose relatives tell doctors not to take organs. According to the statistics of National Agency for Transplantation till first of November 2013 exactly 2750 people have registered in and refused to donate their organs.

According to the statistics of National Transplant agency the potential recipients of organs, tissues and cells for the same period of 2013 were 1057. The majority were waiting for a new kidney – 972. Most of the people have been spending more than 3 years on hemodialysis. They must visit the specialized hospitals and there under medical supervision the machines purify their blood, replacing the function of deceased organ. The problem is not only the reduced number of qualified medical staff but also the technique. About half of machines are over age of 30 years, having been repaired many times. It is estimated that one patient on the hemodialysis costs more than 200,000 leva (approximate 100,000 euro) every year, mostly paid by Health Ministry. The second most wanted organ for 2013 was liver with 48 people waiting for it. In the third group with 31 people was ranked heart. Considered as the most difficult to implement transplantations of the heart are rare in Bulgarian medical history. We should not forget that here the patients cannot be long maintained by the machines as in the case

of kidneys. An option for an extension of the time to the possibility of a transplant is the placement of bypass, which often is associated with health risks to the patient. [5]

For the 12<sup>th</sup> months of 2013 exactly 6 individuals were waiting for lung. Here can be performed full replacement of one or two lungs or partly complement of health cells. Doctors' decision depends on medical and physical condition of the patient, his age and probability to survive the surgery. People with chronic hepatitis B infection, hepatitis C, HIV smoking, malnutrition or obesity are classified as high-risk and are usually left out of the waiting lists.

### 3. The survey

The questionnaire was held between the 1 and 20<sup>th</sup> December 2013. The total number of people who took part was 114. All participants had to answer to 20 questions, divided into three groups. The first one consisted of general query about personal details: sex, age and education. In the second one we wanted to get more information about people's donating feelings and in the third group there were alleged which had to be graded. Approximate time to answer was 7 minutes. In some of the questions there was evaluating scale which was as follows: 1-completely agree; 2-agree to a large extent; 3-tend to agree; 4-tend to disagree; 5-tend to disagree. The survey was absolutely anonymous. The individuals did not need to give their names or surnames, or even e-mail.

For any further questions or concerns they had opportunity to make a comment to us. Social networks as Facebook and Twitter were used as a source of sharing.

#### 3.1. Poll results

First set of question has showed that:

- Out of 114 participants, the women constitute 68% whereas men – 32%. The total number of women, who took part in the survey was 77, and men – 36.
- The people between 25-34 formed the biggest group with 48 people attendance. Teenagers who are 16 or younger had only 4% appearance, while between 17 and 24 – 33%. Interesting fact to notice is a small percentage of the presence of 35-44 and 45-54 groups. In the survey they are considered as people in the middle age. The first one had 12% and the second – 6%. We have not statistics about how many people above 64 years are using computers, that is why we did not report any single response of that group. It is possible for them to use the computer devices but not to spend time in social networks, where the survey took

place. However, individuals between 55 and 64 had 3 percentage.

- The vast majority of people were those with secondary education – 41% or 46 people. Only one participant was indicated PhD, forming 1% of all attendance. Moreover, the group of Master degree had exactly 30% with 34 people, where those with the lower extent – Bachelor hold 24% or 27 people. There were 4 persons (4%) whose education did not belong to any of the above groups, and just 1 agent, who defined his education level as elementary.
- As it was expected most of the people live in the big cities. In the capital Sofia lived 41% of all participants, followed by Varna (the third most populated city in the country) – 12% and Rousse – 12%. It comes as surprise the fourth place of the second biggest city in Bulgaria – Plovdiv, which had only 3%. There were two settlements with 2% - Bourgas and Veliko Tarnovo. 10 percent of all had pointed out to live in places with under 100,000 inhabitants, with no record for municipal above 150,000 and city of Pleven (the seventh most populated).

Second set of question aimed to determine the general opinion of the public about donation and by placing them in the given situation to see what difficulties they may face.

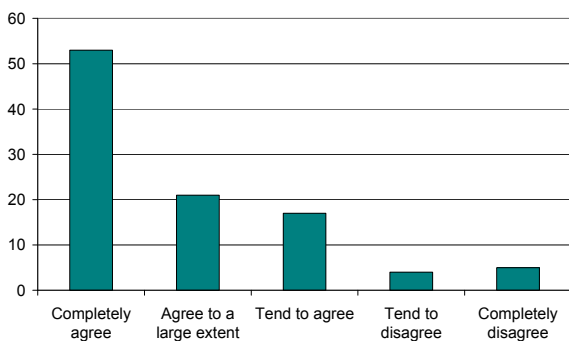
- 27% or 30 people were considered themselves as “purposeful and modern person, who knows exactly what he wants from life”. The largest group of 60 people (54%) were recognized themselves as “a person, who mostly make his own decision but sometimes gets influenced by other people”. Exactly one percent (1 person) shared that the opinion of the society is from great importance for him. 20 individuals (18%) said that the most important decisions in their life were taken after discussion with their parents and family.
- Question number 6 was related to the currently running donor law in Bulgaria. It had to be determined to what extent the person is familiar with it. The final results showed that 57 people (51%) were absolutely unfamiliar with regulations compared to 4% (4 people) – absolutely aware. In the middle 24 agents (21%) were partly familiar and 17% (19 individuals) were not familiar at large degree. Furthermore, 7% (8) considered themselves as familiar to a larger extent.
- Quick answer to the question for or against organ donation outlined three groups. In the first were participants who answered to the inquiry with yes 85% (95 people) and those

who had difficulties to decide – 13% (14 people). Only 3 percent (3 persons) had strongly opinion against donation (chart 7)

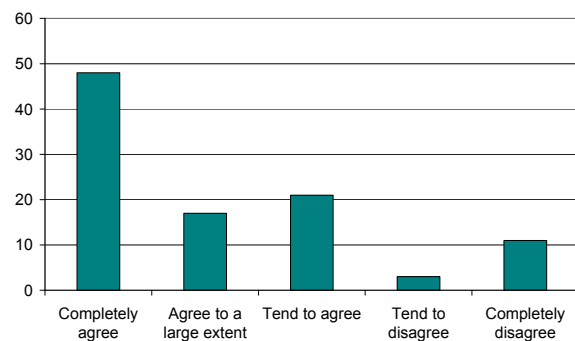
- In the next question we asked people to name the reasons why they are against or undecided about donation. 27% (15 people) were worried about how their body will be treated after the death. 25 % (14 individuals) wanted to have a right to specify which organ to donate. With 20% (11 people) concern that the medical staff may not look after them, if they know the person’s decision to donate, ranked to the third place. 8 participants (14%) were not sure that their family would support that, whereas 9% (5 people) thought that their organs were unsuitable for transplant. However, only 1 percent (2 people) considered themselves as too old to donate, with 2 (4%) religion incompatibility.
- In question number 9 the participants were asked to give the statements which will have a positive impact on their opinion for the donation. The answers were as follows:
  - If I had more information about what happens to a donor’s body after death. 25% - 55

- If I knew that as a registered donor doctors would give me the best possible care. 24% - 52
  - If my doctors supported it 2% - 5
  - If I knew my family and friends supported it. 22% - 49
  - If I knew my religion/church group supported it. 2% - 5
  - If I knew whether I could donate in terms of my age and special medical condition. 14% - 31
  - If I saw a public appeal for organ donation in the press and media. 2% - 5
  - If I could specify who could receive my organs. 7% - 16
  - Nothing could change my opinion. 1% - 2
- In question number 10 we have asked the participants if they were registered donors as 98% of them (109 people) were not, compared to only 2% (2) who were.

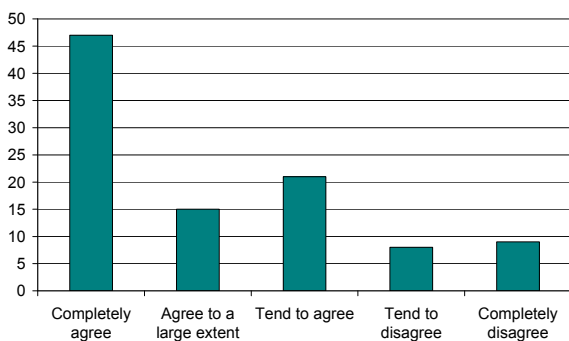
The following figures contain statements that need to be graded, according to the system given in the survey.



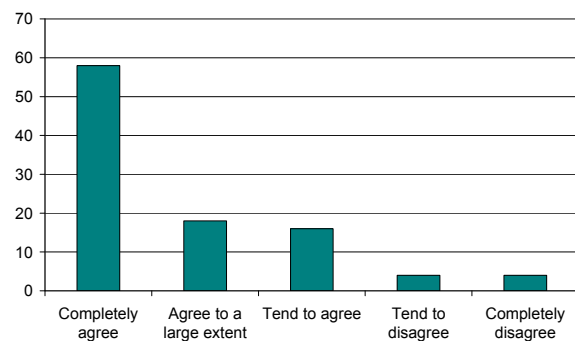
**Fig. 1. To what extent do you agree in order to encourage people to donate, we need a massive awareness campaign(including TV and online advertising), %**



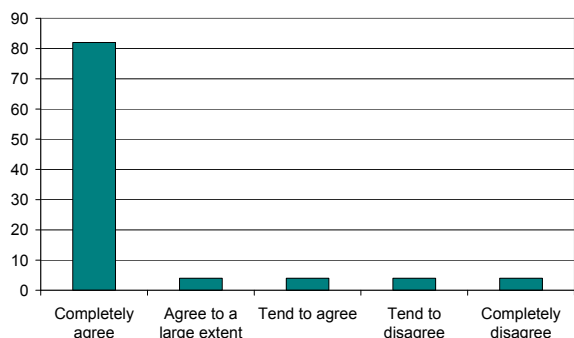
**Fig. 2. To what extent do you agree If someone would be prepared to accept a life-saving transplant in the future, he should be prepared to register as a donor, %**



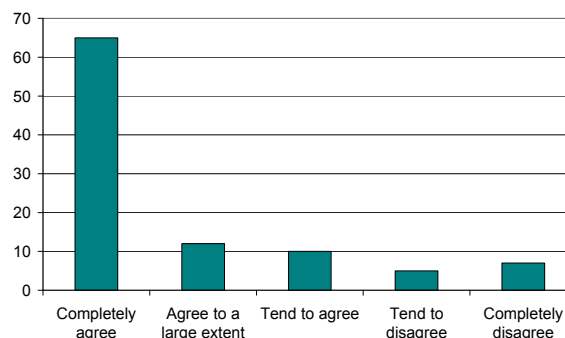
**Fig. 3. To what extent do you agree If there is evidence that somebody wants to donate his organs it should not be necessary to get permission from their next kin, %**



**Fig. 4. To what extent do you agree Society should encourage its members to donate their organs in order to save lives, %**



**Fig. 5. To what extent do you agree Doctors will do their best to save my life if they know I want to donate my organs, %**



**Fig. 6. To what extent do you agree It is very important for me my family and friends to be aware of my personal choice to become an organ donor after my death, %**

The question, concerning blood donation (chart 15) comes naturally, when we discussing donation as a whole. In our survey we wanted to put participants in different situation in order to investigate how they answer will change. Issue about blood does require straight answer. Based on that statement, 71% (80 people) claimed that they have never donated blood, in contrast to only 15% (17), who have donated in the past two years. 10 persons', forming 9% told us that the last they visit blood centers was more than 5 years ago. 5% of all contributions (6 people) gave blood between 2 and 5 years ago.

However, asked how often they donate blood, 68% (50 people) said that did not donate at the moment, where those who did it once a year were 15% (11 people). There were 9 participants (12%) who stated that visit medical centers for blood less than once a year. Moreover, than two times is not considered as healthy although 4% (3) said that doing that, with only one 1 person donation more than 3 times on every 12 months.

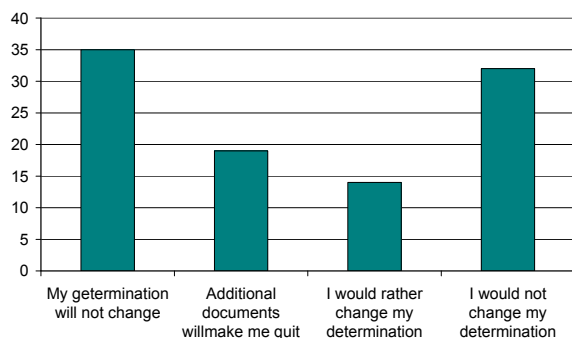
With the last two questions we wanted to investigate the strong tendency of the individual to exhibit inertia around default option [7]. We have asked participants how they intention to become donor will change, if they are obligated to fill a number of additional papers and their notarization (Fig. 7).

We have simulated opt-in situation in which if one wants to donate, he should declare his intention to the appropriate medical staff. 36% (40 people) said that their determination will not change along with 32% (35 people), who stated that they rather not change their strong conviction. From another hand we had 21 people (19%) who would change their mind and another 15 individuals (14%), who tend to change their decision. Interesting thing to notice is that the group of participants, who have strong intention to donate, have formed about 70 percent of all answers given. Surprisingly,

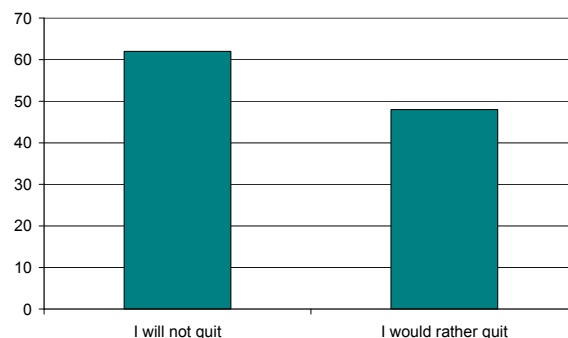
most of the people did not stay at status quo, in other words they were ready to go through all needed procedures in order to become donor. There can be several explanations. One could be linked to the fact that from all ages, young and middle age people are the main donors. Another could be the assumption that opt in systems has very little impact on people with strong donation intent.

In the last question we did the exactly opposite thing (Fig. 8). We tried to implement opt-out system, by telling the people that if they want to stop being donor, they should fill additional documents, requiring the presence of the three witnesses and their signatures. By putting additional documents we wanted to see if participants will stay at status quo. 62% of all attendances (60 people) answered that they will not quit donation, i.e they were stick around default option. However, 38% or 37 people declared their intention to move to the opposite option.

In addition, we have seen that for the people who have strong intention to donate additional obstacles do not change their decision. Their inner conviction to doing something good and from great importance to the society could not be affected by interference. Our further investigations have to be directed to the people, who are uncertain or undecided. By opting out system as default we have proved one of the main tenets of behavioral economics. The majority of people prefer to stay on the "safe default side", although the difference is only 24%. We should keep in mind the fact that not all participants give their true preferences for one reason or another. Nevertheless our main purpose to investigate the Bulgarian donor system is fulfilled. We have tried to build the sustainable environment in which the responses of the people will be subordinated to the aim of the research. It is in the hand of the governments to apply behavioral economics in order to improve organ donation.



**Fig. 7. To what extent are you willing to become a donor if it requires additional documents, %**



**Fig. 8. To what extent are you willing to give up if it requires additional documents?**

### Conclusion

- About a half of people considered themselves as modern and purposeful person sometimes got influenced by other individuals. This assumption can be used as a central point for further investigation. For instance, if there is a special program for promoting donation, led by a famous and respected person, it can be expected to have a positive impact on citizens goodwill. From another hand many people share that their family and friends are important part of decision-making process. If there is discussion in the family all members will be aware of the person's decision to donate or reject and thus will save valuable time when occurrence the medical situation.
- Though more than 80% are in favour of donation over a half of them are unfamiliar with currently running law in Bulgaria. This means that even somebody wants to become a donor, he will be hampered by various factors. Firstly he must read a lot of regulations and then take appropriate actions by giving the permission. The overall process will takes time and at some point person can discouraged and gave up. Therefore it is from great importance of the state to put great effort to explain to its citizens why is it relevant to be actively participated in the donation. It can be used again massive advertising and famous celebrities together with the aid of GPs, who can discuss and give advices.
- In general, in Bulgaria the healthcare system does not enjoy greater confidence among its consumers. For the last 5 years there have been some corrupt scandals, which reduce its useful values. Our survey also confirmed that. More than 50% of all associates were concerned that once become donors, the medical staff will not look

after them at full extent. Again, if the government wants to encourage people to donate, it has to reassure them that they can have completely trust in the medical staff and system as a whole. However, next question support the thesis that people need more information about how their organs will be used after the death. Some of them want to specify who could receive their organs, which is not possible as an option at the moment.

- Majority of the people were agreed that in order to be simulated there should be massive awareness campaign (including TV and online advertising). As it was expected more than 80% pointed out that if someone would accept a life-saving transplant, he should be prepared to register as a donor. Person has a right to decide whether to opt in or out according to results in our survey. Put it in other words, if there is strong written evidence that somebody wants to donate it should be necessary to get permission from their next kin. It is highly important for every 8 people out of 10, their family and friends to support their decision. "Society should encourage its members to donate their organs in order to save lives" said 98 participants.
- 71% of all respondents have never donated blood, in contrast to 29% who have done it in the last 5 years. Some time ago there was a massive campaign for blood donation in which took part famous actors and which had momentary success. In order to be achieved more satisfactory results, this type of campaign should become permanent, once proved its effectiveness. The same goes to the organ donation.
- After all the most important question were those which investigated how willingness to donate would change, by putting additional obstacles. Firstly we have simulated opt in

donating system by which of one person wants to become an organ donor, he should fill a number of additional papers and their notarization. From one hand those who are convinced in their intention stated that they would not give up no matter how hard would it be.

Secondly, we have made the exactly opposite in the last question, telling the people that they are default donors (opt out system) and if they want to give up should fill additional documents and present the signatures of three witnesses. In the first case 75 (68%) of 114 people did not change their initial wish to donate. In the second opt-out case, 62% of all participants did not change status quo.

In conclusion we can say that based on our survey, people show positive attitudes about organ donation. Opt out system is one possible solution

for the system in Bulgaria, but Ministry of health and its organs must persuade the society that the act of donating not only shows personal quality, but also save human life.

#### References

1. Heukelom, F. *Kahnemann and Tversky and the making of behavioral economics*. University of Amsterdam. 2009.
2. Diamond, P., Vertianien, H. *Behavioral Economics and its Applications*. Princeton University press. 2007.
3. Kessler, B., Zhang Y. *Behavioral Economics and Health*. Oxford Textbook of Public Health.
4. Organ Donation Taskforce. *The potential impact of an opt out system for organ donation in the UK*. 2008.
5. [<http://bgtransplant.bg/iat/registers%20and%20statistics.php>].