

The More You Get –The More You Give: The Correlation between Organ Donation and Public Social Expenses.

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Abstract: - Due to the constant shortage of organs but to an increase in need, many researchers from different countries have tried to estimate the various variables that can predict an individual's willingness to donate. The purpose of the study is to examine whether there is a correlation between the willingness to donate an organ or blood, and the degree of the society's investment in the welfare and health of its members in the OECD countries. . Positive correlation was shown between a gap in the Gini index and expenditure on health and willingness to donate organs from the deceased. A similar ratio shows that the greater the gap in the Gini index, i.e. the state imposes a higher level of progressive tax, so the willingness to donate organs from the deceased increases and vice versa. Two other significant but negative correlations were found between the Gini index after tax and the willingness to donate organs from the deceased and between the expenditure from the pocket for health and the willingness to donate organs from the deceased. Since all countries are constantly looking for ways to increase the number of organ donors for transplants, both in legislation and in other ways, this study shows that it is also possible to assist in this lofty goal through economic policy. In our opinion, in the budgetary considerations of the distribution of resources among the different sectors of the population, decision-makers and opinion makers in the economy should take into account that narrowing economic gaps can also lead to narrowing the gaps between supply and demand regarding organ donation, thereby increasing the welfare and the health of the country's residents.

Introduction

Donation is a voluntary act in which individuals, organizations, groups, and foundations contribute money, services, or products. From the economic point of view, a donation is the transfer of goods for no economic benefit and its purpose is "to promote the well-being of humanity, alleviate suffering and improve the quality of life through personal actions of generosity, compassion and financial support" (Anheier & List, 2005).

The contribution of person's parts of the body is also a donation and can be expressed by organ donation, blood donation and by donating one's body to science (Meslin, Rooney & Wolf, 2008). Due to the constant shortage of organs but to an increase in need, many researchers from different

countries have tried to estimate the various variables that can predict an individual's willingness to donate. The variables include demographic and socioeconomic parameters that are essentially objective, such as: ethnicity, age, level of religiosity, gender (Panwar, 2016), residential area: rural / urban, marital status (Vetterili et al, 2015), occupation, education (Weiss, 2014), income and employment (Makmor et al, 2015). Other researchers (Putnam, 1995, Coleman, 1988) have tried to correlate willingness for organ donation with social capital, defined as the total non-material resources available to members of a particular social network by virtue of cooperation, trust and information channels among them. Ladin et al., 2015 found that homogeneous community

variables, such as the level of trust among community members, can predict about half of the individual's willingness to donate organs. Another set of variables that may influence the willingness to contribute are subjective, such as fear, trust in the health system (Schwettmann, 2015), the fear that if you have a donor card, doctors' tendency to determine death will be based on

(Phillipson, 2015) the definition of brain death as death, which may not be easily accepted by the public (Ocarroll et al., 2001). In order to narrow the gap between the huge demand for organ donation and the relatively low supply, various countries have tried to create a system of incentives to encourage the individual and their family to donate organs. The incentives can be divided into economic incentives and "medical" incentives. The financial incentives include, for example, financial support for the family after death, the financing of funeral expenses and the payment of cash (Rasiah, 2015), reimbursement of expenses to the donor for costs incurred due to the donation, such as loss of work days and coverage of medical expenses caused by this, tax benefits or full or partial funding of medical insurance or life insurance (Francis, 2018). The "medical" incentives are to prioritize organ donation when necessary for the donor or his or her family, the priority being on allocation scheme (PAS) (Lavee et al. 2013). Additional variables that can affect the individual's willingness to donate organs are: reference to the subject in television dramas and series, disclosure of details of the donor's family (Harel, 2017) and the publication of the details of a famous person who donated an organ to another person (Schwettmann, 2015). In some countries, such as Spain, the basic assumption is that anyone who has not expressed opposition in the course of their life to donate their organs is considered a person who has agreed to donate their organs after their death. Van Dalen et al., 2014 found that this strategy- presumed consent system- greatly increases the pool of potential donors in relation to the strategy of signing a donation agreement- informed consent system. The above-mentioned works have estimated the relationship

between willingness to donate organs and variables at the level of individual micro-variables. The main thrust of these strategies is to provide incentives for individuals who are candidates for organ donation and do not deal with the connection between society's view of public welfare and public health in general, and the willingness to donate organs. In this paper, we want to examine how society's investment in public health and welfare, as reflected by relevant economic indicators promotes the willingness of its members to donate organs. This study examines the willingness to donate organs with reference to variables at the macro-economic level that is, whether there are links between the willingness to donate organs and blood donation to economic variables in the OECD countries.

Purpose of the Thesis:

The purpose of the study is to examine whether there is a correlation between the willingness to donate an organ or blood, and the degree of the society's investment in the welfare and health of its members in the OECD countries.

The level of investment in individual welfare will be measured by examining the following economic variables: Gini gap before and after tax distribution, expenditure on health from total GNP, private expenditure on health of individuals, GDP per capita, and percentage of public expenditure in each country.

Source of data

OECD (2016), OECD Social Expenditure database.

World Health Organization.

The World Bank Organization.

International Registry in Organ Donation and Transplantation

The data was published in 2016

Results

All the data were statistically processed in the SPSS software in Version 24. Pearson correlations were calculated and relationship modeling was performed

using hierarchical linear regression tests in the Stepwise method.

Table 1: A matrix of correlations between state expenditure on health and willingness to donate organs from the deceased

	1	2	3	4	5	6	7
1. Willingness to donate organs from the dead.	-						
2. blood donation	.36*	-					
3. gini befor taxes	.08	.10	-				
4. gini after taxes	-.44**	-.63**	.46**	-			
5. gap- gini	.53**	.76**	.26	-.74**	-		
6. out of pocket expenditure I	-.42*	-.44**	.04	.39*	-.39*	-	
7. out of pocket expenditure	-.29	.02	-.17	-.13	.02	.54**	-
8. Expenditure on health as percent of GDP	.47**	.44*	.13	-.14	.26	-.51**	-.53**

*p<0.05, **p<0.01

Table 1 demonstrates a positive correlation ($r = 0.36$, $p < 0.05$) between the number of blood units transferred and the willingness to donate organs from the deceased. Positive correlation was also shown between a gap in the Gini index ($r = 0.53$, $p < 0.01$) and expenditure on health ($r = 0.47$, $p < 0.01$) and willingness to donate organs from the deceased. This means that the greater the number of donated blood units, the greater the willingness to donate organs from the deceased and vice versa. A similar ratio shows that the greater the gap in the Gini index, i.e. the state imposes a higher level of progressive tax, so the willingness to donate organs from the deceased increases and vice versa. In addition, the higher the expenditure on health from

the GNP, the greater the tendency for the individual to donate organs. Two other significant but negative correlations were found between the Gini index after tax and the willingness to donate organs from the deceased ($r = -0.44$, $p < 0.05$) and between the expenditure from the pocket for health and the willingness to donate organs from the deceased ($r = -0.42$, $p < 0.05$). This opposite trend shows that an increase in direct expenditure from the pocket for health leads to a decrease in the willingness to donate organs from the deceased and vice versa. Similarly, it was found that the higher the Gini index, i.e. the lower the level of inequality in the distribution of income, the greater the willingness to donate organs from the deceased.

Table 2 - Correlation matrix between cash expenditure, Gini index after tax transfers and public social expenses, and willingness to donate organs from the deceased

	1	2	3	4	5
1. Willingness to donate organs from the dead	-				
2. public spending on cash	.47**				
3. Gini index after transfers and taxes - Working population	-.47**	-.64**			
4. Gini index after transfers and taxes - Older population	-.363*	-.63**	.88**		
5. public SOCX	.40*	.59**	-.48**	-.41*	
6. Gross national income	.35*	.43*	-.44**	-.25	.39*

*p<0.05, **p<0.01

Table 2 demonstrates a positive correlation ($r = 0.47$, $p < 0.01$) between public spending on cash and the willingness to donate organs from the deceased. The more the state's willingness to spend a higher percentage for public consumption increases, the greater the willingness to donate organs. Positive and medium correlations were also found between public SOCX ($r = 0.40$, $p < 0.05$): The more social state is, the more the public's willingness to donate organs. A correlation was also shown between gross national income ($r = 0.35$, $p < 0.05$) and the willingness to donate organs from the deceased. The higher the GNP per capita, the greater the willingness to donate organs. A negative correlation was also found between the Gini index after transfers and taxes ($r = -0.47$, $p < 0.01$) and willingness to donate organs from the deceased. The higher the income distribution, the willingness to donate organs decreases.

In a subsequent statistical step, the forecasters' predictive ability regarding organ donation in general and excluding variables such as education, the importance of religion and income, were examined by regression in steps.

1. Prediction of the willingness to donate organs from the deceased in general

Prediction of the willingness to donate organs from the deceased through hierarchical regression in steps yielded a significant model ($F(2,31) = 10.29$, $p < 0.01$), which includes the 'Gini gap' predictors ($\beta = .394$).

While the first predictor accounts for 28% of all changes in the willingness to donate organs from the deceased, the second predictor may add another 12% to this donation.

Overall, the model may explain about 40% of variance in the predicted variable (Table 3).

Table 3: Regression in steps to predict willingness to donate organs from the deceased by predictors, donated blood units, gap in the Gini index, expenditure from the pocket, health expenditure, GNI, Gini index after tax transfer

β	ΔR^2	R^2	F	variable	Step
.439	.282	.282	**12.59	gap- gini	1
.354	.117	.399	**10.29	Expenditure on health as percent of GNP	2

**p<0.01

The literature indicates the cultural variables, education, income, and religion as variables that obscure the connection between the willingness to

donate organs from the deceased and the various predictors. Therefore, partial correlation calculations were carried out after deduction of

variables of education, income, and religion. The statistical analysis indicated the effect of the variables that cloud the relationship. Thus, the countries were classified dichotomously according to their median value, both in relation to education and in terms of income, and in relation to religion.

In each classification, regressions were carried out for optimal prediction of the individual's willingness to donate organs from the deceased (Section 2-4).

2. Prediction of the willingness to donate organs from the deceased, less education

Table 4: Regression in steps to predict willingness to donate organs from the deceased by predictors, donated blood units, gap in the Gini index, expenditure from the pocket, health expenditure, GNI, Gini index after tax transfer.

β	ΔR^2	R^2	F	variable	Step	education
.556	.291	.291	6.92**	public spending on cash	1	Low
.484	.234	.525	7.27**	Health expenditure as	1	High
-.611	.373	.373	8.91**	- Gini index after transfers and taxes	2	

□ **p<0.01

Prediction of the willingness to donate organs from the deceased in countries with a low level of education through a hierarchical regression in steps yielded a significant model (F (2,14) = 7.27, p <.01), which includes public spending on cash ($\beta = .556$) and health expenditure as ($\beta = .484$).

the deceased, the second predictor may add another 23% to this donation. The model as a whole may explain about 52% of variance in the predicted variable. In contrast, among countries with a higher level of education, there was a significant predictor of a single "Gini after transfers and taxes" (F (1,15) = 8.91, p <.01), which explains 37% of the changes in the forecast.

While the first predictor accounts for 29% of all changes in the willingness to donate organs from the deceased, the second predictor may add another 23% to this donation.

3. Prediction of willingness to donate organs from the deceased, less income

While the first predictor accounts for 29% of all changes in the willingness to donate organs from

Table 5: Regression in steps to predict willingness to donate organs from the deceased by means of predictors, donated blood units, gap in the Gini index, expenditure from the pocket, health expenditure, GNI, Gini index after tax transfer.

β	ΔR^2	R^2	F	variable	Step	income
.622	.387	.387	9.47**	gap- gini	1	low

□ **p<0.01

Prediction of 'willingness to donate organs from the deceased' among low-income countries yielded a significant model (F (2,14) = 9.32, p <.01) which includes the gap- gini predictor

organs from the deceased. On the other hand, no clear model was found for predicting 'willingness to donate organs from the deceased' among countries with high levels of income.

($\beta = .622$). The first predictor explains 39% of the changes that apply to the willingness to donate

4. Prediction of the willingness to donate organs from the deceased, the importance of religion

Table 6: Regression in steps to predict the willingness to donate organs from the deceased by predictors, donated blood units, gap in the Gini index, expenditure from the pocket, health expenditure, national GNI, Gini index after tax transfer.

β	ΔR^2	R^2	F	variable	Step	The importance of religion
.533	.284	.284	5.95**	public spending on cash	1	Low
-.581	.338	.338	7.66**	out of pocket expenditure	1	High

**p<0.01

Public expenditure of the state is a clear predictor of organ donation among countries where religion is not important ($R^2 = 0.284$), whereas in countries where the importance of religion is high, the more money a person spends, the less their willingness to donate organs ($R^2 = 0.338$).

Discussion

According to today's view, all capitalist countries, including the industrialized countries, are welfare states, since they all deal with the redistribution of social resources. However, they differ in their intensity in operating the mechanisms in order to redistribute resources in society. These mechanisms collect resources from citizens - for example through taxes - and redistribute them in ways perceived as just. Common mechanisms of redistribution are public education and health systems, allowances and more. All the industrialized countries can be placed on an axis between the liberal point, which emphasizes civil freedom and tends to reduce the state's intervention in the market as much as possible, and the social-democratic point, which stresses the importance of equality among citizens and believes in high government involvement in market management and resource allocation.

This study deals with the relationship between the willingness to donate organs and blood on the one hand and the economic variables characteristic of each of the 34 member countries of the industrialized countries on the other. It was found

that the more a country offers equalization and greater resource allocation, the greater the individual's willingness to donate organs. As it is known, in all countries there is a huge gap between the rising demand for organ donation and blood donations and the relatively limited supply. While organ transplantation has progressed technologically and medically in recent decades, the main obstacle in the way of this progression is the constant shortage of organs for transplantation. Since all countries are constantly looking for ways to increase the number of organ donors for transplants, both in legislation and in other ways, this study shows that it is also possible to assist in this lofty goal through economic policy. In our opinion, in the budgetary considerations of the distribution of resources among the different sectors of the population, decision-makers and opinion makers in the economy should take into account that narrowing economic gaps can also lead to narrowing the gaps between supply and demand regarding organ donation, thereby increasing the welfare and the health of the country's residents.

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