Donors Without Rights -
The Tragedy of Organ Transplantation

by
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Abstract

Organ transplantation, traditionally attributed to the fields of law and of ethics, embodies fundamental economic problems. 1,500 patients die as a consequence of organ shortage in Germany every year. Government regulation is not aimed at closing this gap by facilitating donors and recipients to match. Rather an approach is followed which separates their treatment. Alternatively it is proposed to allow every person to declare: “I dedicate my organs post mortem primarily to patients who are willing to dedicate their organs too.” Such a declaration serves as a signal for others to do likewise so that organ shortage may be diminished.

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I. Organ Donations – An Economic Problem

Organ transplantation is part of the modern high-tech medicine. Many decades of intense research were needed to understand the complex relations and reactions in the transplantation process, but still one assumption must hold in the transplantation medicine: donors and recipients must team up. It seems relatively straightforward in case of living donors. Donors and recipients may relate directly. In case of post-mortem donations an intertemporal problem arises. The one who is willing to dedicate his organ needs to declare disposition beyond his dead. Enforcing the latter, an agent is needed between donor and recipient.¹

In most countries the government (or an authorised governmental institution) is assigned to organize the arrangement. The government is designed to be agent of the donors, being unable to express themselves anymore, and moreover to be a judge between the interests of the donor and the recipient. This requires a difficult balancing of interests. On the one hand it shall be partisan and on the other hand it shall be impartial. In practise this is circumvented by the so-called separation principle, i.e. the government regulates the rights of the donors independently from the ones of the recipient. This ostensible impartiality consequently leads to decisions supporting the direct interests of the recipient, hence putting the ones of the donor in the rear. A potential donor receives the right to refuse the donation. All other rights, especially the right to benefit a specific group of recipients, are denied. Those are appropriated by the state. The state, not the donor is entitled to decide who receives the organ and who doesn’t. The following six fundamentals of the separation principle² are derived from this viewpoint:

1. The state has a monopoly of intermediation on the post-mortem donations. Whoever is willing to donate has to use the state or a state approved institution; donations on an individual basis are forbidden.
2. As a result of the donation, the donor assigns all rights of disposal on the organ to the state who, from now on, has exclusive ownership. Only donations free of charge are accepted. The regulated supply price is zero.

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¹ Masculine and feminine forms are applied equivalently for simplicity sake throughout the paper.
² For Germany the most important regulations can be found in § 12 of the Transplantation Act, for Switzerland in art. 17 of the current draft of the Transplantation Act. In Austria the Austrian “Krankenanstaltsgesetz” is in place which gives the right of organ removals to the hospitals. The so-called objection solution holds, cp. Part III.2.
3. The identity of the donor must not be revealed to the recipient. Communications between donor and relatives, respectively, and the recipient is forbidden.

4. The allocation of organs, following the separation principle, must be totally independent from its origin. Whether someone receives an organ or not, must not be depending on his personal willingness to donate. This should solely be decided upon “medical” criteria and the number of patients on the waiting list.

5. Exceptions to this rule exist in case of living donors.

The merits of the strict state regulations on organ donations need to be evaluated in relation to the amount of victims, solely resulting from the shortage of organs. In Germany this affects approximately 1,500 persons per year. In public, this is proclaimed as an unavoidable fact. The willingness of the citizens to donate is simply too low, people are not willing to deal with the subject death\(^3\). Such “explanations” are, however, not sufficient for an economist. For her shortage is a sign of inefficiency. The current system is obviously not able to match donors and recipients. It fails dramatically. By means of economic concepts it can be shown that the current system is inequitable and ethically questionable. Why? In principle the answer is easy: organ donors do not have rights.

Proposals to conquer the problem of organ shortage were already put forward several years ago. The philosopher and economist Hartmut Kliemt argued in favour of donor- and recipient-associations, hence initiating an active discussion (Kliemt 1993). Similarly, Gundolf Gubernatis (1997) from the German Foundation for Organ transplantation argues for a model of solidarity which allows donors and recipients to team up. The amount of state engagement is not uncontroversial. The proposals range from the mentioned associations, to state organised reciprocity (Breyer, Kliemt, 1997), and to state acquisition solutions (Harris and Erin 2002). Further more some economists explicitly argue for a market of organs (Barnett, Blair and Kaserman, 1992, Aumann and Gaertner, 2004 a,b).

In the overall discussion on organ transplantation those views are merely seen as outsider positions. The biggest and also dominating part of the literature on this topic ignores the horizontal interaction of donors and recipients, respectively dismisses it as a principle of arrangement. Instead donors and recipients should be included in a vertical structure and then regulated according to the separation principle from top to bottom (cp. Gold, Schulz and Koch, 2001, in an expertise for the Federal Centre for Health Education (Bundeszentrale für gesundheitliche Aufklärung)). To explain the development and to refute the prevailing opinion is the first aim of this essay; see part II. Thereon the part III debates how rights of donors can contribute to a solution of overcoming the shortage of organs. Central point of these proposals is the **provision principle**. It can be seen as an alternative to the existing **separation principle**. Accordingly each individual shall have the possibility to increase the probability of receiving an organ in case of illness, by declaring her willingness to donate post mortem. How the willingness to donate might develop in the provision principle will be shown in part IV. The provision principle might also not totally dispose the waiting lists. Therefore an algorithm is needed, which determines an order of allocation in case of conflicts; this will be developed in part V. Provision and separation principle will be contrasted analytically in part VI. Both principles will be evaluated on ethical and equity grounds in part VII. Finally part VIII will conclude with some fundamental remarks on the productive cooperation of economics and law.

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\(^3\) As an example it is referred to the message of the Swiss Federal Council to the Federal Act on transplantation of organs, tissue and cells (Botschaft, 2001). Below in part III.4, this question is discussed more closely.
II. Why Do Organ Donors Have No Rights?

In order to overcome the tragedy of the shortage of organs or to get at least closer to a superior solution, the past development has to be understood. This ostensible indirection is necessary, because each reform has to start considering the status quo. “We start from here” was written by James M. Buchanan (1978) and meant that the burden of proof is with the one who is willing to change the status quo.

Why – and this is the first question – did the individual rights on organs not assert from the very beginning of the transplantation medicine? This has evolutionary and ideological reasons.

1. An Explanation of the Status Quo

The roots of the transplantation medicine go back to the thirties of the last century (figure 1). During the sixties they were firstly applied in Europe. The transplantation medicine had an experimental character in those days. The risk was substantial. Hence only few patients were prepared take the risk of organ transplantation. The private benefit of those operations was relatively small for the recipients, in contrast to the public benefit of research findings. A sale of implanted organs to the patient seemed therefore to be unreasonable. The removal could rather be enabled by the approval of relatives or if necessary according to the autopsy law, because scientific reasons were dominating. But at that time, only very few cases existed. Transplantations were conducted according to the accidental existence of appropriate donors and recipients. Supply and demand for donor organs where not yet diverging. It was a more or less random matching of donors and recipients. Not until the beginning of the 70s the amount of transplantations began to mount. But transplantations were still risky.

Figure 1: Steps of the transplantation medicine 1933-2000

Source: Own illustration

4 “We start from here, from where we are, and not from some idealized world peopled by beings with a different history and with utopian institutions. Some appreciation of the status quo is essential before discussion can begin about prospects for improvement.” Foreword to J. M. Buchanan The Limits of Liberty (1975, page. 7)
This changed with the introduction of effective immunosuppressive drugs as Cyclosporin and the considerable decrease of treatment risk. Organ transplantation developed from trial to routine. The public character of transplantation was no longer in the foreground, but the private one. Demand boosted and uncoupled from the stationary supply of organs, thus a shortage of organs occurred, which developed an alarming degree. The waiting list for kidneys increased up to 12,653 patients in 2002 in the Eurotransplant area\textsuperscript{5} and 9,623 in Germany, respectively (cp. figure 2). 621 kidney patients died in the Eurotransplant area, 418 in Germany, because donor kidneys were not available in time. Long waiting periods with numerous deaths also existed for other organs. All help was too late for approximately 1,500 organ patients in Germany in 2002, either they died while they were on the list or they were deleted from the register, because their state of health worsened to a terminal organ insufficiency.

It is correct that the increasing trend slightly flattened in recent years, but this is basically due to a steady state effect, where the amount of waiting patients is reduced through the increasing number of deaths (cp. Table 1).

**Figure 2: Transplantation and Waiting List of Kidney Transplantations in the Eurotransplant Area 1969-2002: From Experimental Stage to Routine**

\textsuperscript{5} Austria, Germany, Belgium, Luxembourg, Netherlands, Slovenia.
Table 1: Deaths Due to the Organ Shortage

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<td>Deceased kidney</td>
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<td>Deceased, all</td>
<td>705</td>
<td>745</td>
<td>1876</td>
<td>1037</td>
<td>922</td>
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Source: Own computations based on Eurotransplant data

The shortage could have been resolved if the interaction of donors and recipients was facilitated from the very beginning. In case of living donors this was relatively simple. Providing a donor will result in receiving. Hereby the matching problem usually has to be resolved by the demander. But this solely bilateral interaction is not sufficient in case of post-mortem donations. Organ requiring people would have to contact, eventually using intermediation, the potential donor or typically his relatives. Buying the organs from the relatives might have generated volitions which might have been in contrast to the hypothetical will of the deceased. Money would have distorted the incentives of the relatives. Only if money is ignored, an approximation to the hypothetical will of the donor can be expected. The elimination of money can be seen as a prerequisite to prevent a donation of organs of the deceased by relatives for the sake of money though the deceased might have objected. Only without money the relatives have an incentive to place themselves into the person of the defunct when deciding to donate or not to donate. But also such extra-monetary volitions are anything but reliable, which will have to be shown in part VII B. So far an institution is missing, which enables donors themselves to get in contact with the recipients regarding post-mortem donations.

Thus the shortage of organs remained and a new, gradual rationing procedure was established, a triage, which has to be complied by all patients. At first it is decided for the patients whether they are assigned to a substitution therapy, such as dialysis. Then it comes to the decision to be enrolled in the waiting list. Finally an organ is being searched at Eurotransplant according to “matching” criteria and, depending on the result, an organ is allocated or not. The ones who fail usually die prematurely, elected ones can expect recovery.

2. The Dogmatic Hardening of Status Quo

Next, the rationing procedure had to be justified in public. It had to be explained that the shortage of organs with all its bitterness, affliction and death is a matter of nature, thus has to

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6 An exception is the cross-over living donation, which is currently prohibited in Germany. In that case, matching is organized by hospitals.

7 If this is the reason for the abolition of prices, the incentives for the relatives to undertake the donation will decrease compared to a system with prices. I will refer to this question in part III.2 and III.4 and footnote 30.
be abided. As mean the analytical separation of donation and receiving of organs was used, e.g. the already mentioned separation principle. Therewith the spotlight could be aimed at the distribution of a given number of organs to the recipients and not to their generation. There are two research directions to be mentioned.

Jo Elster (1995) and Volker H. Schmidt (1996) showed in different case studies that triage is typical where situations of shortage exist (places at universities, staff reduction, allotment of council flats, places in retirement home, right to immigration). The involved persons somehow have to cope with the shortage. The ones must be filtered who should receive scarce goods. Hereby it is not fully clear who succeeds and which normative properties satisfy the solution of triage. Therefore the authors admit that a comprehensive fairness as it is sought e.g. through federal tax and transfer systems cannot be reached through triage. However they believe to be able to attach the attribute fairness, more precisely “local fairness”, to the solution. Local means that the application of the rule is limited objectively, temporarily and socially. Objectively signifies that not all individuals are affected by the distribution of e.g. scarce social housing. Temporarily means: individuals are not confronted with shortages during their entire life; e.g. only young people are or are not conscribed for military service. Social can mean that in case of catastrophes only specific social groups are affected, thus they are the only ones to consider for the distribution of rare relief supplies. In the course of time the rules of local fairness can reinforce to a common belief. In case of organ transplantation they have substantially formed the Transplantation Act of 1997.

Differing from the pragmatic approach of Elster and Schmidt, the bio-ethic project of the German Research Foundation (Deutsche Forschungsgemeinschaft) shall directly determine the “criteria of fair organ distribution”. Within the bounds of this project Thomas Gutmann and Bijan Fateh-Moghadam (2003, page 71-103) as well as Thomas Gutmann (2005) examined the question of fair organ distribution in terms of judicial dogmatic and under constitutional law. According to the opinion of the authors, consideration of benefits (as life expectancy) should not count for the distribution of organs. Instead, primarily the neediness should prevail as criterion for the distribution of donor organs. Because, according to the principle of the indifference of life values, all patients have the same claim on available donor organs:

“The allocation criterion under constitutional law should foremost depend on the individual neediness of the patients on the waiting list. This has to be understood as temporal (super) urgency in respect to the danger of life in case of lacking organs. Following the principle of priority of the neediest and endangered patients, the number of rescued individual lives and not the number of years of live of individuals is the primary good which has to be optimized following the Constitution.” (Gutmann 2005, page 220, translated by the author)

Similar to Elster and Schmidt, Gutmann and Fateh-Moghadam proceed from a given fixed number of disposable organs. No justification is provided for this assumption. A theory of donor behaviour is missing. Therefore authors cannot rule out, that the number of disposable organs is endogenous. The way organs are distributed may e.g. influence the number of organs donated. This has profound consequences for the theory of Gutmann and Fateh-Moghadam.

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8 Schmidt and Hartmann (1997, page. 11)

9 Schmidt starts his essay “Some Equity-Efficiency Trade-Offs in the Provision of Scarce Goods: The Case of Lifesaving Medical Resources” as follows: “Institutions from all across society are – regularly or occasionally – faced with the choice of how to distribute a given number of material or immaterial, positive or negative goods at their disposal.” (Schmidt, 1994, page. 44). Correspondingly Gutmann speaks of “organ pools”, which are apparently predetermined. (Gutmann 2003, page 72)
Distributing organs solely according to the neediness of patients on the waiting list (leaving open the question of whether to consider or to disregard the utility drawn from a received organ) can be inferior in contrast to a distribution, which considers the willingness to donate and therewith offering more of the primary good of life chances. The neediness becomes relative to the number of life chances; a weighting is required. As a result the separation principle underlying the German Transplantation Act which relates the allocation of organs solely to so-called “medical criteria”, but not to the willingness to donate is hardly justifiable. Intention and purpose of the entire transplantation medicine is the increase of survival chances. Ignoring the number of life chances would not make any sense. Would the system of allocating organs as proposed by the authors lead to a supply of zero (which is not suggested, but cannot be ruled out) nothing would be left to be distributed. Towards the ones who have to waive their survival chances, the procedure would be everything but fair.

Concluding, the nowadays shortage of organs can be characterized as a state, which came about evolutionarily and subsequently was justified and crystallized in a dogmatic interpretation of law. It was shown that the theses legitimating the status quo and the resulting separation principle are not defensible. Now the field is open to proceed from a new paradigm: The number of organs is not independent from the distribution of organs. This paradigm leads to the provision principle, which will be analysed more closely in the following chapters.

III. Alternative Procedures of Organ Allocation

Alternatively to the separation principle a couple of other procedures are being discussed, which might be basis for organizing organ transplantation: the market, the objection principle, different fairness solutions and the presented provision principle. They have to be contrasted in a sense of comparative institutional approaches.

1. The Market for Organs

Organs are private goods. Their allocation is basically best organized through the market form. Everybody has the disposal of his own organs and a market-clearing price is formed, which eliminates the shortage of organs. Criticism is expressed on the selection of market participants. On the market – this is feared – the poor will donate organs, because they require money and the wealthy will receive organs because they can afford them. Chances of survival according to personal wealth is being seen as ethically untenable, even if without a market the number of deaths increases and the survival chances are given up.

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10 To anticipate possible objections to my position: My focus is not the utility derived from survival chances, thus not on utilitarianism, but on the survival chances themselves.
11 Some consider organs as public or pool goods. This is, however, wrong as organs are characterized by rivalry and the applicability of the exclusion principle and hence are private goods according to these standard criteria. Only the organization collecting and distributing organs may be regarded as pool good (not a public good) as the service of intermediation is shared by all those who adhere to the same organization. Costs can be supposed first to decrease and then to increase with increasing membership. Hence there is no need to run intermediation under a public monopoly.
12 The discussion of ethical justification in this question is of course not terminated. In contrary, Christian Aumann and Wulf Gaertner (2004 a,b) stress, with reference to literature and practical experience in developing countries, the ethical dubiousness of the prohibition of organ trade. If a father is donating his kidney to his daughter, it is being perceived as altruistic and right. But if he sells his kidney in order to cover the costs of medical treatment for his daughter, it is perceived as doubtful. Etc.
Nevertheless, a black market for organs does exist. It is often missed out that discrimination between rich and poor people often only occurs because the trade is illegal; hence mediators require higher risk premiums for the intermediate trade.

A market without the asymmetry between the rich and the poor is imaginable, if the government is buying all donated organs through its health insurance system and thereafter provides them to the patients. The British philosophers John Harris and Charles Erin (2002)\(^\text{13}\) argue similarly. But on closer examination this turns out to be a dummy solution. It suffers from the same inconsistencies which one finds traditionally in the British National Health Service and which were already mentioned many years ago by James M. Buchanan (Buchanan 1965). The buying up of all organs by the government or federal insurances would result in unit prices of zero for the individual insured. The cost of organs would be shifted to the insured community. Thus, the individual would demand organs until his marginal utility is zero. For the insured community the invoice would escalate, because organ demand would boost and with increasing numbers, the supply price would also rise. In the collective decision, rationally acting insured or their representatives will, therefore, reject such a total coverage, because, at the margin, costs are too high compared to individuals’ willingness to pay. In order to equate the two in a system without prices, the National Health Service will require quantitative restrictions. The problem of organ shortage cannot be conquered in this way.

One may or may not reject the market solution (I share part of the reservations), but considering the diffusing black markets, the market will come anyway sooner or later. In any case a legal market for organs based on enforceable contracts is more efficient (and according to my opinion also ethically more acceptable) than the black market. But this will be a long term process, because the described and manifested status quo has to be conquered. Therefore it has to be seen as success if the vertical regulation of the separation principle is abolished and replaced by the horizontal interaction solution, as the mentioned provision principle.

2. The Objection Principle

The objection principle seems to work without a market. On this concept the personality of a human being basically ends with its death. The body is ownerless and falls to the state, which removes the organs, unless the person objected during his lifetime. This radical solution is in place in Austria.\(^\text{14, 15}\)

The possibility, to object, should protect personal rights. But on closer examination the right is just partly protected, because the objection doesn’t offer the full personal disposal on one’s organs after death. The donor neither has the permission to sell his organs nor the possibility to transfer them to a charitable organisation. The state claims the entire receiving and also the agency monopoly. In other words: the individual can either choose to stay calm and therefore

\(^{13}\) Christoph Erich Broelsch also aims at the buying-up solutions. Proposing tax breaks, insurance easement, etc. http://www.bioskop-forum.de/themen/transplantation/kongress/christoph_broelsch.html

\(^{14}\) § 62a para. 1 of the Hospital Act (Krankenanstaltengesetzes) from 1982 states: “It is permitted to remove organs or parts thereof in order to save the life of a person or to restore her health through transplantation. The removal is not permitted if a declaration is available for the doctor stating that the deceased or his representative, prior to the death, has explicitly objected to organ transplantation. The removal mustn’t lead to a piety affecting deformation of the corpse.” (translated by the author)

\(^{15}\) Besides Austria the objection solution is in place in: Belgium, Italy, Luxembourg, Poland, Portugal, Slovakia, Slovenia, Spain, and Czech Republic. An additional objection possibility for relatives is allowed in: Finland, Russia, Greece, France, Latvia, Liechtenstein, Norway, Sweden and Cyprus. Cp. http://www.bioskop-forum.de/themen/transplantation/gesetzliche_regelungen_zur_organtransplantation.htm/erwwi
donate the organs post-mortem to the state or can object and then bury the body. If he is not explicitly objecting, the state receives access. In this respect the objection solution is close to the enforcement solution.\textsuperscript{16}

Even if the assessment of this kind of appropriation by the state is disregarded, the question remains what is done with the organs. One has to distinguish between demand and supply. \textit{Demand} for organs will increase rapidly under the objection principle, due to the assumed unlimited supply with a price of zero. Compared to foreign countries, a price differential arises which favours export demand and “transplantation tourism”. It is increasingly attractive for foreigners to receive organs in the country. In order to avoid that foreign patients are crowding out domestic ones, the state border must ration. The ones who are able to cross the border and get their transplantations in the country will receive a scarcity rent, which may be fully or partly acquired by hospitals or doctors through free pricing (which is often the case). Thus the proscribed market breaks through. Just the donor or his legal heirs are missed out.

But this is only a half-truth. The \textit{supply} should be considered as well. From the socialistic planned economy it is well known that state property doesn’t lead to abundance, but to shortages. As long as the value of the right on removed organ cannot be internalized by the supplier, little incentives exist to remove it. This value manifests not until implantation. Thus, though the end price of a transplanted organ may be high, the governmentally fixed explantation price is low and does not even compensate the costs of explantation. Its value is mostly socialized. A peripheral hospital which is not transplanting will therefore have little incentive in explantations. It implies for doctors and nurses additional work through determination of brain death, verification of the absence of an objection, formalities and should the occasion arise further explanation to the relatives; furthermore a trial risk exists. Hence it seems better to let the patient rest in peace. Moreover it is not clear whether a price according to scarcity is at all feasible. It might be so high that the explanting hospitals are blamed unfair enrichment, and if so the relatives can be predicted to claim their “fair share” too. This would, however, contradict the principle of banning prices out of organ transplantation. Thus, the vicious circle closes. It is true that data to corroborate these hypotheses do not exist. But they may nevertheless help to understand the Austrian phenomenon of a shortage in presence of the objection principle.

3. Fairness Solutions

Who should receive organs according to fairness reasons? Certainly the sick according to urgency and utility assumed that these terms may be definable in a reasonable manner. So it is written in the Transplantation Acts (§ 12 para. 3 of the German TPA and art. 17 para. 1 of the Swiss TPA). Thus the rights of recipients count. But should those be the only ones? The transplantation medicine solely depends on the willingness of donors. Without donors there are no recipients. Consequently it would be unfair, even discriminating, to distribute organs irrespectively whether the patient was live donor or at least declared post-mortem donor. Treating unequals equally seems as false as treating equals unequally.

A fairness solution therefore requires that the government gives priority to the distribution of organs to former living donors and also to the declared post-mortem donors. For instance, it

\textsuperscript{16} In 2003, 1,497 people were registered in the objection register in Austria. In total the register contains 9,025 registrations since its introduction 9 years ago.
seems extremely unfair that a donor kidney was withheld for the often quoted Johannes Ideus from Wangerooge, although he donated his kidney to his sister several years before. He finally died. Or another example: If out of two patients one has filed a donation declaration and the other didn’t, then fairness requires to give it to the one showing her willingness to donate and not the other one, given that only one organ is available. This principle seems to be based on a broad ethical consensus. Our survey from year 2000 showed an acceptance of 134:0:79 (Blankart, Kirchner, Thiel, 2002).

Behind the fairness solution is mainly the intuitive assumption that the state decides who should receive priority for an organ. But this implies that the state is owner of the donated organs and thus donors can merely donate to the state. But why should the state have this privilege? Moreover, if the state is exclusively allowed to receive and to distribute organs, the danger exists that people try to endear themselves with a “good deed” to the controlling decision makers in order to receive priority rights. Furthermore, vote seeking politicians will utilize the organ pool to create new categories for “reputable citizens”, who should receive priority. The higher the numbers of special categories, the lower the incentives for normal citizens to provide own contributions through donations.

4. Provision Principle

Fairness solutions are based on “rewards”. Whoever donates, shall receive. The terms of trade are explicitly determined by the state. It would be better, however, if rights of organs stay with the individuals who find their equilibrium through interaction, depending on their marginal valuation for replacement organs and their marginal willingness to donate. This is the aim of the provision principle. It is remarkably easy: A person has the right to make a statement as the following to a trustee:

“I hereby state, that my organs, post-mortem, should be given primarily to patients who are also willing to donate.”

- This statement acts as a signal for like-minded people, to make a similar statement. Thereby a reciprocal relationship is generated.
- Reciprocity creates solidarity. Donation willing people help one another.
- For each who made the statement, the probability increases to receive an organ in case of disease. The provision principle works as insurance.
- The main objection against the market solution, that the increase of survival chances is connected to the economic wealth drops out. Each individual has the same amount of organs and can deploy all his willingness to donate. Ex ante, individuals are treated equally.

18 In a hearing on 1st of March 2004 of the enquete commission “ethics and law of modern medicine” of the German Bundestag (parliament), the question was raised whether living donors should receive organs with priority in case of later diseases. A large proportion of the interviewees agreed.
19 In the course of my investigations I met persons who made statements such as: “I have done so much good for the society in my life that I feel to be entitled to an organ in case of a need as a matter of course without the requirement to donate one myself post mortem.” -- One has also to expect opposition against such an award system. The further this system spreads and donation related good deeds are rewarded, the earlier the remaining not-privilegde will resist and might sue because of discrimination.
20 Note that it is the declared willingness to donate which counts and not the actual capacity to donate, see below, note 31.
• In case of ex-ante equal treatment, the ex-post inequality becomes acceptable.
• The concrete distribution of organs is organized by the state (being agent) or by one or more authorized agencies. In contrast to the separation principle and the fairness solution, the state doesn’t distribute the appropriated organs, but distributes on behalf of the donors. The declaration to give organs primarily to donors is met by the prioritisation of donors.\(^{21}\)\(^{22}\)
• In other words: The declaration to donate is accounted for when organs are distributed. The additional word “primarily” assures that super urgent patients are treated even if they do not meet the criterion of donation willingness. But because most of the patients will be in the state of a waiting therapy and therefore in a comparable state of health it is fair to consider them as more or less equal and to rank them according to their willingness or non willingness to donate.
• The state, in its function of an intermediary, cannot be criticized of being in any sense discriminatory as it isn’t distributing its own organs, but the ones from the donors according to their intention.
• Organ patients cannot be blamed either. Non donors will have to wait longer (in case they are not being seen as super urgent), but they are not discriminated by that; the essence of their basic right, to deny the donation, remains untouched.
• Finally, the provision principle creates ownership rights and hence claims through which the patients or their donor organisations can exert pressure on the hospitals in order to actually undertake the explantation of organs. In this respect the provision principle counteracts the tendencies inherent in the objection solution (see III.2) as well as in the separation principle to avoid explantations.

In addition the provision principle overcomes an important weakness of the separation principle: It internalizes the \textit{psychic costs of organ donors}. What does this mean? The decision for a post-mortem donation requires various rather difficult personal considerations. It is stated: they have to become aware of the finiteness of life; actually they have to deal with the subject death in general. The fear may arise that a prior donation declaration will result in less nursing at the potential end of life, so that the organs remain useful for the hospital. One also has to consider the criterion of brain death, because people usually aren’t experts, thus have to believe researchers and politicians that the determined definition is also the appropriate one for them. Over and over again it is said that people are overstrained by those questions, consequently are not willing to donate. Even educational advertising and asseverations of ethical committees fail on this bound. But should this be regretted? Wouldn’t it be better to ask for the reasons for this overcharge? They are likely to be found in the \textit{separation principle} itself.

Individuals will generally accept all kind of costs and therewith also the mentioned psychic cost, if they receive an appropriate return. Solely returns allow balancing the pros and cons. Under the separation principle the return to the donor is equal to zero\(^{23}\). Consequently it is not

\(^{21}\) The German Transplantation Act demands in § 12 “an appropriate institution” for the distribution of organs, de facto Eurotransplant, which receives the monopoly for distributing organs. The monopoly is justified with increasing returns to scale. The matching process is said to be qualitatively higher, the bigger the organ pool. This argument lost relevance because of the availability of efficient immunosuppressive drugs. In order to account for the provision principle, Eurotransplant should be obliged to consider individual willingness to donate for the distribution of organs, besides the existing criteria, or the monopoly of Eurotransplant should be broken up.

\(^{22}\) The provision principle creates ownership rights and claims which will be enforced by donor organisation which will exert pressure on the hospitals in order to actually undertake the removal. In this respect the tendencies of the objection solution stressed in part III.2 are counteracted in the provision principle.

\(^{23}\) Solely the personal satisfaction to do a “good deed” stops the donations from decreasing to zero.
astonishing that psychic costs create an effective bound for organ donations. The reason for the donations abstinence – as already mentioned – will not be found in the difficult reflections with the subject death, but in the missing compensation for these reflections. The provision principle in contrast offers a return: a conditional insurance against the consequences of an organ malfunction. The individual will contrast the advantages to the costs and decide whether to donate post-mortem or not. It has to be shown in the following chapter, that there are good reasons to assume that donations will increase under the provision principle. But more important is the mere fact that the individual is faced with a choice which she is free to take or to leave, and not with an imposed moral obligation to do good. If the individual refuses to declare her willingness to donate and it turns out that she does not receive an organ when she needs one, then the detriment is not imposed but generated by her. In this sense, a “shortage” of organs does no more exist.

IV. Higher Willingness to Donate Under the Provision Principle

But what are the costs or benefits for the individual of a reciprocity declaration of the form: “I hereby state, that my organs, post-mortem, should be given primarily to patients who are also willing to donate”? In a first stage we assume that we start from scratch. This was more or less the hypothetical situation with which the respondents were confronted in our inquiry of the year 2000. The answers were as follows: Without the provision principle only 12 percent of the interviewed persons proved their willingness to donate post-mortem with an “organ donor card”. Another 59 percent are basically also willing to donate, but their personal costs to state this in a donor declaration were apparently too high. The remaining 29 percent were negative or indifferent. Especially in the second group revealed that the pure altruism is not enough to donate. Something more is needed to overcome their psychic costs to donate. The value proposed is an insurance, i.e. a higher probability to receive an organ in case of illness. With this extra good which was not available before, a new equilibrium evolves between donors and recipients.

The individual consideration is shown in figure 2. The abscissa shows individuals of the population P ranked according their increasing personal marginal costs C(P) of overcoming (their psychic costs); firstly voluntary donors with, from their perspective, negligible costs of overcoming and then the ones with little, followed by the ones with increasingly higher costs of overcoming. The marginal advantages V(P) of the provision principle, are related to the insurance effect. It is true that in the immediate neighbourhood right of point A the utility gained from participating in the provision principle is very low. But so are by definition the costs as the individuals there are just at the edge of donating or not donating for pure altruism. Nevertheless a net benefit is possible and insofar a group of reciprocal donors may emerge which with increasing memberships becomes increasingly attractive. Each entrant who signs sends a signal and an incentive to equally minded persons to join. The provision principle grows into increasing returns to scale. The confidence in its success relies on the circumstance that for participating in the provision principle – differently from other networks – no initial investments are necessary. The practical absence of a risk and costs encourages people to participate. Only the observation of a notice period is required.24

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24 A notice period is furthermore required to avoid abuse of the provision principle (full particulars in: Blankart, Kirchner, Thiel, 2002, page. 21f.).
The marginal advantage slowly diminishes, if the number of potential donors becomes very large and finally encompasses the entire population. At the same time individuals will charge, that the utility of free-riding will increase according to the generally improved organ supply. They speculate on eventual oversupply of donor organs. This reduces the curve a little to $V(P)^-$. Individuals will join the provision principle as long as the defined marginal valuation of the increased security through the provision principle in point C is equal to the marginal costs of overcoming. At that point, D percent of the population declared the willingness to donate. This point is beyond point A, which is the willingness to donate under the separation principle (cp. Arrow).

**Figure 2: Influence of the Provision Principle on the Willingness to Donate**

The approach, starting from scratch, abstracts from a pre-existing separation principle. In the presence of such a system, however, bad risks may flow into the insurance of the provision principle. Ahlert (2004) argues correctly, that all patients on the waiting list will be willing to enter. Hence, without restrictions, congestion will come up and the so far separately observed

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25 Point A is not achievable due to speculative free-riders.

26 Concerns were expressed, that 12% of the interviewees, who are willing to donate without any incentives, could stop donating with the introduction of the provision principle. According to Bruno S. Frey (1997) it can be argued that altruistic behaviour based on intrinsic motivation is displaced by extrinsic motivation. But this argument does not apply. Surveys could solely show that money or governmental control (regulation) displace the intrinsic motivation (cp. Frey 1997). But money is not relevant in our case. Interestingly intrinsic motivation is hardly influenced by reciprocity, according to a survey by Ahlert (2004).
utility from the individual accession will be blurred. This is a danger which is, however, just limited to an interim period. The waiting list has a survival period of 4 to 5 years. Thus only that cohort is affected. To demand that those individuals should not participate in the provision principle cannot be seen as unfair. All insurances start from the principle that pre-existing special risks are not included. Moreover it has to be kept in mind that non-participants are not excluded from transplantations under the provision principle; they just have to wait longer. Alternatively it can be stated that it is favourable to have open access for everybody from the very beginning, but the first 4 to 5 years should be seen as quarantine period during which the inherited principles apply. Early signers would nevertheless benefit in that they obtain priority on the waiting list as soon as the provision principle starts. This effect is reinforced by the system of a qualified waiting time, which will be discussed now.

V. The System of a Qualified Waiting Time

Resulting from the reasons stated in section IV it can be expected that the willingness to donate will increase relative to the status quo. Possibly all waiting lists will disappear. But it cannot definitely be determined, because the provision principle is based on real exchange rather than on money exchange. If waiting lists do not fully disappear under the provision principle, an algorithm for distribution is required subsidiarily. It is task of the agency institutions to place offers and give its customers a choice. As a model solution I want to propose an algorithm for qualified waiting times developed in the team of Blankart, Kamecke, Kirchner et al. (2000). It works as follows:

Essential for the allocation of an organ is the net period of donation willingness, meaning the time in which the donor was longest able to show his willingness to donate, relative to his age. This results out of the difference of the period of donation willingness and the age. Whoever declares his willingness to donate at the earliest, say 18 years age, is in every stage of life on the highest level of zero of the chronological priority (past years of life since age 18, minus period of donation willingness). All others, who declared later, depending on the period in which they were willing to donate, reach a less prior position; e.g. -1, -2, -3 etc. for declarations in the age of 19, 20, 21 years etc. The provision principle does not favour elderly people. It sets incentives to sign the declaration at an early age, even during the quarantine period, in order to obtain a better rank thereafter. This is exactly desired as the period of potential donation is increased and adverse selection is restricted. Individuals who become ill during their lifetime will not be rejected from joining the provision principle (they may donate other organs post mortem) but they will rank behind the young signers. As this is anticipated young people will have an incentive to sign early in their life.

The stated algorithm holds for comparable patients, therewith, as mentioned above, for the majority of cases, while super urgent patients obtain priority.

27 The basic idea is due to my colleague PD Dr. Pio Baake.
28 Eurotransplant uses the algorithm developed by Thomas Wujciak and Gerhard Opelz (1993 a and b), which considers a given number of organs and therefore does not account for the idea of a provision principle. In my mind the Wujciak-Opelz-algorithms could be extended by our algorithm in order to incorporate the aspect of endogenous organ supply. Our survey (Blankart, Kirchner, Thiel, 2002) showed that most interviewees were favouring the consideration of linking the distribution of organs to declarations of the personal willingness to donate.
29 In a comprehensive analysis further aspects have to be considered. It has to be examined, e.g. if people are dealing with organs more or less carefully under the provision principle than under the separation principle. The priority given to donors may contribute to moral hazard. In contrast incentives for non-donors to behave carefully may increase.
VI. Comparison of Provision Principle and Separation Principle

The following table 2 will summarise characteristics of the provision principle and separation principle.

Table 2: Overcoming the Shortage of Organs under the Provision Principle and under the Transplantation Act

<table>
<thead>
<tr>
<th></th>
<th>Provision principle</th>
<th>Separation principle (Transplantation Act)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Cause of organ shortage</td>
<td>Coordination problem</td>
<td>?</td>
</tr>
<tr>
<td>2. Owner of organ</td>
<td>Private</td>
<td>State</td>
</tr>
<tr>
<td></td>
<td><em>Fundamental right of objection</em></td>
<td><em>Fundamental right of claim</em></td>
</tr>
<tr>
<td>3. Connection between donor and recipient</td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td>4. Allocation of donor organs</td>
<td>Based upon donation declaration (and priority for super urgent patients)</td>
<td>Based upon waiting list, urgency and utility</td>
</tr>
<tr>
<td>5. Set up of regulation</td>
<td>Long run</td>
<td>Short run</td>
</tr>
<tr>
<td>6. Long run supply situation</td>
<td>Decrease of organ undersupply</td>
<td>Increase of organ undersupply</td>
</tr>
</tbody>
</table>

*Source: Own composition*

The column “provision principle” in table 2 can be interpreted as follows:

1. The problem to be solved in the transplantation medicine is coordination. Not the lacking willingness to donate is the reason for the organ shortage but the inability of the potential donors and the organ seekers to enter in an intertemporal relationship.

2. This coordination problem can be solved if individuals are granted the right of disposal on their organs.
3. Then they can declare: “I will provide my organs primarily to individuals who themselves are willing to donate.” An agent assures that the declaration will be fulfilled by donors and recipients.\(^{30}\)

4. Organs are allocated according to the patients’ willingness to donate\(^{31}\) with a priority for super urgent patients. Thus, the rights of both owners and recipients are being considered. The freedom of choice for the doctor remains. The shortage of organs decreases.(see 6 below)

5. The provision principle is a long run arrangement. Because it refers to the individuals’ willingness to donate. Only if donors exist, transplantations can take place.

6. Because of the connection between donors and recipients, a tendency to equal supply and demand and to an elimination of the shortage is created. Oversupply or undersupply cannot, however, be completely excluded, because the price mechanism is not in force. This is done on purpose and in accordance with the Transplantation Act.

As a mirror image to the provision principle we have the Transplantation Act (TA) based on the separation principle. Its fundamentals are described in the right column of table 2.

1. Shortage of organs exists. But its causes remain unclear. The state’s duty is limited to the management of the existing shortage.

2. Therefore the state acquires all available organs. Then it distributes them depending on applications and fundamental rights of claim to the patients.

3. Donors have no influence on the distribution. Their donations have to be unconditionally. This is the only way to establish absolute state property. Thus any motivation, but altruism, is suppressed.

4. Distribution is solely based on waiting time, and dependent on medical criteria as urgency and utility of the transplantation.\(^{32}\)

5. Because the supply of organs is taken as granted, a sensible contribution to an understanding of the nature of transplantation cannot be made.

6. In the long run, the problem of organ shortage remains.

\(^{30}\) The agent has incentives to achieve the actual removal of organs of dead donors. Under the separation principle those incentives are missing. Hence parts of the organ shortages are due to the missing willingness of hospitals to remove organs (see III.2 and III.4).

\(^{31}\) The criterion of the willingness to donate is occasionally criticized, because not all individuals have organs which may be donated. Meanwhile this objection is incorrect; because the willingness and not the ability to donate counts. The latter is the only one which has to be documented. Usually there are decades between declaration and death. Medical progress and therefore the ability to donate can change significantly during that period. Nevertheless early signers receive priority. Thus adverse selection can be avoided (see section V). Another argument states that immigrants are disadvantaged, because they could only accumulate less years. That is true. One could counteract that immigrants should be treated as if they started in the minimum entry age, say 18 years (see section V). But this would be neither fair nor efficient, because the insurance community could be circumvented. Due to the fact that every immigrant can join the community in his current age, charges and preferential treatment balance.

\(^{32}\) Because most patients who need organs have similar clinical pictures, the waiting time is essentially relevant.
VII. Separation Principle, Constitutionality and Ethics

Economic instruments allow the reflection of the current regulations of organ transplantation regarding fairness, constitutionality and ethics.

A. Right to Live (art. 2 para. 2 BL)

The right to live is embedded in the German Basic Law (BL) in art. 2 para. 2 s. 1. Connected to the right to live is the right of each individual to care for his health. It is true that the constitution provides support for each individual in this endeavour (art. 20 para. 1 BL). But this aid can solely be subsidiary. It holds if the individual is not capable of managing his life herself. One possibility to make use of the fundamental right to secure his life and limb can be found in a declaration of reciprocity in organ transplantation, according to the provision principle. Its prohibition would contradict art. 2 para 1 BL and would thus be unconstitutional. But this is exactly done by art.12 para. 2 Transplantation Act. The citizen is merely allowed to accept the offer of Eurotransplant, which doesn’t allow a donation according to the provision principle.

The proclaimed thesis from Gutmann and Fateh-Moghadam (2003) to distribute the available “transplantation capacities” (organs) solely according to neediness, because all individuals have the same right to live is insufficient, because the amount of organs to be distributed is generally depending on the distribution system. Consequently the weighting between the amount of survival chances and their distribution has to be made. But because of missing appropriate benchmarks, which allow an outsider to weigh, the autonomy must be left to the individuals.

B. Voluntariness of Post-Mortem Donations (art. 1 para. 1 and art. 2 para. 1 BL)

Donations should be voluntary. This is required by the human dignity and personality rights, according to art. 1 para.1 and art. 2 para. 1 BL. The voluntariness can be stated in a donor declaration. The declaration is requirement for the removal. That is the essence of the so-called consent solution embedded in §3 of the German Transplantation Act. In practise, however, post-mortem removals which are based on a donor declaration are rather rare. To reach a minimum of donor organs the legislation accepted curtailments from the principle of voluntariness. Instead of an actual approval, it solely demands a hypothetical approval (§4 Transplantation Act). It is called “extended consent solution”. But it is unclear, or even has to be assumed, that at present an unknown number of organs is removed post-mortem against the free will of the donor.

Taken in isolation, the permission for hypothetical approval, as ultima ratio, may be acceptable. But regarding the provision principle, the assessment can no longer be supported.

Objections occasionally state that it is problematic to consider the willingness to donate as allocation criterion, because not all patients had the same possibilities to make the donation declaration. Whatever is understood by “possibility”, it has to retreat from the right to live. The right to secure ones life and limb holds independently, whether others were equally able. If a ship capsizes, everybody may try to rescue oneself, even if others are further out in the sea and will reach the shore with a smaller probability. In my opinion, a community, which refuses the right of each citizens to secure his own life first, will not survive.
On the one hand, a model of actual voluntary donation is forbidden, because the framework of the provision principle is prohibited. On the other hand, a hypothetical voluntary donation is allowed, although it is not proved whether it is voluntary or not. This contradicts the constitutional principle, stating that restrictions of fundamental rights have to satisfy the proportionality principle, thus are solely permissible after all constitutional conform possibilities have been exhausted.

A pragmatic solution would be to approve the provision principle and to reduce stepwise the hypothetical permission during its incorporation. In this way it could be accounted for the human dignity and in the interests of the organ recipients.

**C. Voluntariness in Case of Living Donors (art. 1 para. 1 and art. 2 para. 1 BL)**

A contradiction to the voluntariness arises in respect to living donors. It is an open secret that living donations, especially kidneys, have increased rapidly, because organs of dead donors are not sufficiently disposable. In fact, living donations should be as voluntary as post-mortem donations; this should be monitored by the legislator. But what does voluntariness mean, if a relative suffers and a healthy individual has no other chance than donating his kidney to his next of kin, because of the shortage of post-mortem donations? Voluntariness and enforcement are therefore pretty close. We reach a bound which better should be circumvented. But the Transplantation Act aims at the opposite direction. The prohibition of the provision principle, stated in §12 Transplantation Act, forces people to solve difficult decision problems regarding living donations. In fact, the number of living donations boosted in the last years. The involuntariness of donations, which was intended to be avoided, is in fact supported through the Act. As a result, not only constitutional conflicts arise, the regulation is also ethically vulnerable. It would be favourable to permit the provision principle and therewith reduce the pressure of living donations.

**D. Ethical Dubiousness**

There are not only high constitutional, but also high ethical requirements to the Transplantation Act. Is it ethically acceptable? Or does it generate ethically abject behaviour? Of course various dimensions exist. Doctors, legislators, hospital management etc. are involved. But one dimension stands out: the relationship between donors and recipients.

One general answer to this kind of problem was given by the philosopher Immanuel Kant over two hundred years ago.\(^{34}\) He writes in his categorical imperative: “*Act only on that maxim whereby you can at the same time will that it should become a universal law*.”\(^{35}\) In case of organ transplantation someone violates the categorical imperative, if he makes use of donated organs, but at the same time is not willing to donate his own organs post-mortem. His behaviour is immoral in sense of Kant, because consequently it cannot hold as general rule.

But how should we cope with the situation that realistically many people act self-interested and therefore are prepared to receive organs, but are unwilling to donate? Do we want that

\(^{34}\) My colleague Prof. Dr. Dr. Christian Stadler from the University Vienna called my attention for that point.

\(^{35}\) Kant (1788): there exist four to five formulas. Above the so-called generalized formula is quoted.
this immoral maxim becomes general rule? Obviously the answer is no. Because a law, based on that, will ruin the transplantation medicine. It lacks moral credibility.

But this is exactly the aim of the Transplantation Act, which is based on the separation principle. Donors and donations deniers are served in exactly the same priority in case of illness. The Act approves the immoral behaviour of certain individuals, who want to receive organs without donating. The consequences are shown today in the low and steadily declining willingness to donate, cp. figure 1.

At the same time, an individual behaviour according to the provision principle can be generalized. The explanation: *I am donating primarily for the ones willing to donate*, can be seen as general standard. Everybody can participate in transplantation medicine, but it is not mandatory if someone is not willing.

**VIII. Conclusions for the Cooperation of Economics and Law**

In our pleading for the provision principle,\(^{36}\) which we were presenting at the consultations for the Swiss Transplantation Act between 2000 and 2004, we received a lot of comprehension from doctors, who are facing the tragic decisions of the organ allocation in their everyday business. They are interested in solutions as the provision principle, because it helps reducing the tragedy of organ shortage and the necessaries to make those decisions. Also some politicians were open for our concept. But most were afraid of supporting a concern which merely yields in a few votes. Declared opponents were found in the administration of health services – the reason is obvious. In the provision principle the organ allocation is mainly self-determined. The administration has only little influence on the distribution. It is not able anymore to allocate rents by discretion, but is reduced to the enforcement of the reciprocity negotiated by the willing donors.

Lawyers of public law were totally objecting the provision principle, which was decisive for the eventual political decision against it, and it is understandable why. In their education they get to know the state as a system of rules and decisions of the Supreme Court. Acting individuals who may question or disorder these principles are not existent in their framework. Individuals who endeavour to adjust as well as possible to the constraints of law are not relevant. Living individuals become abstract categories, as “carriers of fundamental right”, “claim entitled persons”, “taxpayers”, “conscience committed members of parliament”, “offenders” etc. What these categories state and how they interact, thus bringing the state back to life, are hardly visible in the legal analyses. Therefore it may occur that the interaction of individuals is simply denied, as in case of the Transplantation Act. Those donors who are willing to donate are one category and the ones who aren’t another. Each has to be treated separately. The disregard of interactions which results in the death of many people is not incorporated in this abstract world.

At that point economists enter. They deliver general theories of human behaviour. With their instruments they are in a position to show that the product – e.g. the organ transplantation – is based on the interaction of utility maximizing individuals. However economists can contribute little without the knowledge of legal institutions. Their approaches run the risk of sticking to the world of pure modelling, hence ignoring the relevant questions.

\(^{36}\) Blankart, Kirchner and Thiel (2002).
Therefore it is obvious to unite the two approaches after centuries of divergence. Institutional economics and public choice attempt to do so.

I have tried to show the significance of the co-operation of economics and law in the field of organ transplantations. Donors have to receive rights. Based on that, the Transplantation Act should be amended and admitted to a better future.


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