

The Medical Community's Opposition to Organ Markets: Ethics or Economics?

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Abstract. A severe shortage of cadaveric human organs for transplantation exists in the U.S. The obvious cause of this shortage is our current public policy which proscribes payment for such organs. Support for this policy and opposition to the formation of organ markets has been quite strong among transplant suppliers (both hospital and physician groups). This paper critically evaluates the ethical arguments advanced to buttress this policy position and presents an alternative economic explanation based upon profit-maximizing behavior. The model we develop is based upon monopsony in organ procurement with a kinked (and possibly discontinuous) organ supply function.

Key words. Organ transplants, monopsony.

Every major horror of history was committed in the name of an altruistic motive.

—Ayn Rand

I. Introduction

The National Organ Transplant Act, passed in October, 1984, proscribes payment for human organs to be used in transplantation.¹ Equivalent statutes exist in several states as well. These acts serve to codify the *de facto* policy that has prevailed in the United States since transplants first became feasible in the mid-1950s. Passage of this legislation was largely motivated by a Virginia physician's attempt to depart from this long-standing policy by brokering kidneys contracted to be purchased from living donors.² The acts, however, apply to cadaveric organ sales as well.

With compensation to organ suppliers forbidden by law, the current system of organ procurement must rely upon altruism as the behavioral force giving rise to a supply of transplantable organs. In effect, the market price of organs is mandated to equal zero, and individuals or their families are encouraged to donate their organs at the time of death by appeals to social values or charity.

As a result of this policy, thousands of critically ill patients awaiting organ transplantation suffer and die because suitable organs are not available.³ At the same time, many more organs are buried each year than the number required to meet the demand for transplantation.⁴ Less than one-fourth of the organs that

could be utilized for transplants are actually harvested under the current procurement system. Thus, the current crisis in organ supply is not mandated by nature but, instead, is the result of a procurement policy which fails to provide adequate incentives to harvest available organs.

Despite the obvious and long-standing failure of the existing system, the medical community has steadfastly opposed fundamental changes in the way organ procurement efforts are conducted in this country. Specifically, both hospital and physician organizations have adamantly opposed the creation of markets for cadaveric organs. Both the American Medical Association and the American Hospital Association have expressed their support of the current system and their opposition to a market-based approach.⁵ Moreover, three separate transplant associations have passed resolutions that allow for expulsion of any member taking part in organ purchases and sales. One such resolution characterizes a market system as “abhorrent” and “completely morally and ethically irresponsible”.⁶

In this paper, we briefly explore the underlying arguments upon which this opposition is ostensibly based. More importantly, we demonstrate the economic (profit) incentive of hospitals and physicians to maintain a procurement system that relies upon altruistic (zero price) supply despite the shortage that such a system creates. Thus, our analysis suggests an alternative (and, to us, more convincing) reason for the observed policy position of the medical community.

II. The Ethics Arguments

Advocates of the current organ procurement system argue that it is superior to a market system primarily on moral or ethical grounds. While the ethical concerns with a market system are not always (or even usually) clearly stated, three major issues appear to dominate discussions in this area.⁷ These issues are: (1) a fear of “economic coercion” of the poor; (2) a concern that organ markets would restrict accessibility to transplants by the poor; and (3) an argument that organ markets would have an adverse effect on the incentive of physicians to maintain adequate care for critically ill patients. In the paragraphs that follow, we briefly evaluate the arguments that have been advanced regarding these issues.

1. ECONOMIC COERCION OF THE POOR

Several medical ethicists have expressed opposition to the use of market forces to increase cadaveric organ supply on the grounds that families of deceased individuals may be “economically coerced” into agreeing to organ sales that violate their fundamental religious or moral beliefs. There are at least four major problems with the economic coercion argument. First, it is obviously paternalistic in nature. In effect, the ethicist substitutes his or her own values for those of the individuals involved in the transaction.

Second, this argument presumes that the market-clearing price of cadaveric

organs will be sufficiently high to provide a financial incentive that overrides fundamental religious or moral beliefs. Economic reasoning, however, suggests that the equilibrium price of cadaveric organs is likely to be quite low. This conclusion is based upon two observations. First, due to the extremely low collection rates under the current system, there is a lot of excess capacity in the market for cadaveric organs. And second, the opportunity cost of these organs is extremely low. Consequently, the market-clearing price is likely to be correspondingly low. This, in turn, means that whatever “economic coercion” may be involved in this transaction will be small, and any strongly held beliefs will simply lead to a refusal to sell.

Third, if we are going to base our selection of policy options on the sole criterion of the degree of coercion involved, then we must look at the market system not in isolation but in comparison to our existing system. A market system would create a mechanism for voluntary exchanges at mutually agreeable prices. Under the current system, a physician, nurse, or organ procurement officer must try to coax the family of the deceased into giving away for free an asset that could be worth several hundred dollars. Which system involves greater coercion? By favoring the current altruistic system over the market system, the medical ethicist is merely substituting moral or emotional coercion for the alleged “economic coercion” that would accompany a market system.⁸

Finally, those commentators who argue that the market system is economically coercive must take responsibility for the high price extracted under the current policy to avoid such coercion. In effect, defenders of the present system are trading lives for a policy that they personally prefer because of its reliance upon altruism (by others).

2. ACCESSIBILITY BY THE POOR

A second concern that has helped prevent adoption (or even rational discussion) of a market-based system for organ procurement is the expressed fear that, if organs are purchased from suppliers, only wealthy individuals will be able to afford transplants. The obvious fallacy involved in this argument is that it fails to distinguish between a market for *acquiring* organs and a market for *distributing* organs. Creating a policy that generates a larger supply of organs is analytically separable from creating a policy to allocate that increased supply across income groups. That is, use of the market system to *procure* organs does not require use of the market system to *allocate* them.

An analogy would be our present policy concerning access to food by the poor. We do not stipulate that food prices will be zero because of the clear disincentives presented to food producers under such a policy. That is, severe shortages would arise under this policy. Instead, we allow market forces to establish equilibrium food prices and then subsidize purchases by low income individuals. While the

food stamp and agricultural programs are certainly not without flaws, they are, nonetheless, far superior to a policy of free food for the few who could obtain it.

3. PREMATURE TERMINATION OF CARE

The third ethical issue pertains to potential incentives for premature termination of care. This problem involves a fear that an organ market might result in unwarranted removal of care of seriously ill patients in order to obtain transplantable organs to sell. The principal problem with this argument is that, under a market system, the attending physician has no direct profit interest in obtaining the organs from the patient. Under such a system, the property rights to the organs of the deceased would be held by the surviving family members. That is, the donor's family is the only entity that stands to gain financially from the death of the organ supplier. The physician responsible for the patient's care has no more incentive to withhold treatment of a potential organ supplier than any other patient. The existence of an organ market is, in this sense, similar to a will. It yields benefits to someone from the death of the patient, but no benefits accrue to the physician responsible for the patient's care.

The above evaluation of the ethical arguments used to justify the current organ procurement policy and to oppose a market-based system reveals fundamental weaknesses with these arguments. The obvious question that emerges at this point is: If the current altruistic system of organ procurement functions so poorly and the ethical arguments used to support it are so obviously flawed, then why has this system persisted for so long at such great cost? Also, in a related vein, why are hospitals and physicians so adamantly opposed to a policy that relies upon market forces to increase organ supply when such a policy seems likely to save numerous lives? The following section may provide some insight to these questions.

III. The Economics of Altruistic Versus Market Supply

The model we develop here is intended to provide an economically rational (i.e., profit-motivated) explanation of the medical community's opposition to organ markets that is consistent with four stylized facts:

- (1) There is a severe shortage of transplantable organs under the current altruistic system;
- (2) Transplant centers and physicians work hard to increase the number of transplantable organs under this system;
- (3) Hospital and physician organizations are adamantly opposed to the formation of organ markets; and
- (4) Potential organ suppliers may differ markedly in their responses to the emergence of such markets.

Our model incorporates several institutional and technical details highlighted by previous writers. First, a successful organ transplant requires a correctly matched organ as a necessary input: transplantation can be viewed as a fixed coefficient production technology.⁹ Second, for historical and, perhaps, technological reasons, organ collection and distribution is managed by a set of large, regional transplant centers which serve as monopsonistic collectors of donated organs.¹⁰ Further, these centers are generally managed by physicians who also perform the transplants. Hence, it seems reasonable to suppose that the centers can be viewed as collective entities which act at the behest, or at least in concert with, transplant service providers.¹¹ Third, reimbursement to transplant providers is usually made by a third party, such as the Health Care Financing Administration or an insurance company, on a fixed fee per procedure basis.¹² Because of this third party payment, potential demanders of transplant services can be expected to evidence some eagerness and extreme price insensitivity in requesting service.¹³

Finally, we note that previous discussions (and criticisms) of the potential of a market for organs have posited the existence of a class of donors who are averse to market sales. Such donors, it is argued, can be expected to suspend provision of organs if a market is instituted.¹⁴ As this phenomenon is alleged to limit the feasibility of a market, we incorporate it directly into our analysis.

Accordingly, we begin by defining four classes of potential organ providers who are differentiated by their attitudes toward a market and their willingness to accept compensation for donations.¹⁵ We label these classes the market averse (MA), the good Samaritans (GS), the good opportunists (GO), and the self-interested (SI). MA suppliers are assumed to donate $Q_{MA} > 0$ organs if there is no market for them but provide zero organs otherwise. GS suppliers provide $Q_{GS} > 0$ organs whether there is a market or not and refuse compensation in all cases. GO providers provide Q_{GO} organs whether there is a market or not but demand and accept the prevailing level of compensation if there is a market. Finally, the SI suppliers provide a quantity $Q(p)$ that depends on the level of compensation p offered such that $Q(0) = 0$ and $Q'(p) > 0$.

Production of transplants is assumed to involve the one-for-one combination of an organ and a medical procedure. For simplicity, we assume that procedures can be provided at a constant marginal cost of MC in any relevant quantity, so that the limited availability of organs forms the only binding constraint on transplant supply. Transplants are paid for by a third party which establishes a uniform reimbursement rate of $r > MC$ so that, with a zero price of organs, transplants are privately profitable to transplant providers.¹⁶ This assumption insures that transplant providers, acting unilaterally, would desire to expand the number of procedures they perform when the altruistic supply of organs is less than the number of potential recipients.¹⁷

In the absence of a market for organs, our assumptions about organ providers imply that the number of organs available for transplantation is at most $Q_{MA} + Q_{GS} + Q_{GO}$. The transplant center, which functions as a monopsony within

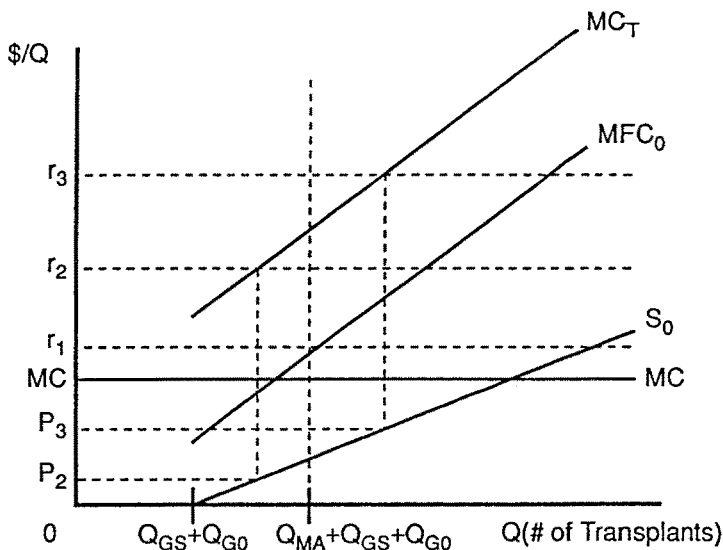


Fig. 1. Three kinds of monopsonistic optima.

its collection region, recognizes this number as the maximum altruistic supply and, since $r > MC$, chooses to harvest this maximum yielding a quasi-rent of $(r - MC)(Q_{MA} + Q_{GO} + Q_{GO})$.

We consider next the creation of a market for organs while maintaining the assumption of (regional) monopsony in their collection. Our goal is to evaluate the circumstances under which the creation of a market is likely to lead to diminished rents for transplant providers, establishing a profit motive for opposition to organ markets by care providers.

Since our interest focuses on the impact of a market *per se* (rather than on determinants of the received rate of compensation and the existence of a monopsonistic market structure in organ procurement), we will initially assume that (i) the unregulated monopsony is maintained in the presence of a market; and (ii) the compensation rate is unaffected by the formation of a market or the number of organs transplanted.¹⁸

When a market for organs is allowed, the monopsony can harvest up to $Q_{GS} + Q_{GO}$ for no compensation, or it can choose to engage in some purchases obtaining a supply of up to $Q_{GS} + Q_{GO} + Q(p)$ organs at a total cost of $pQ_{GO} + pQ(p)$. These expressions yield the competitive supply (S_0) and marginal factor cost MFC_0 curves for organs given in Figure 1. We note that the MFC_0 curve exhibits a (potentially large) gap at the quantity $Q_{GS} + Q_{GO}$ as a result of the existence of GO type providers.¹⁹ Following the conventional analysis, the marginal cost of a transplant MC_T to the monopsony is merely the vertical sum of the MFC_0 and MC curves. Rents are then maximized at the quantity for which $MC_T = r$.

Generically, there are three sorts of potential rent-maximizing optima for the

monopsony, depending on the level of compensation r . Representative examples are illustrated for compensation rates r_1 , r_2 , and r_3 ($r_1 < r_2 < r_3$) in Figure 1. If compensation is "low" ($r = r_1$), the monopsony would merely harvest all organs supplied at a price of zero ($Q_{GS} + Q_{GO}$), yielding a quasi-rent of $(r_1 - MC)(Q_{GS} + Q_{GO})$, which is less than that obtained when there is no market. If compensation is in the "middle range" ($r = r_2$), some organ sales occur at price p_2 , but the profit maximizing quantity $Q_{GS} + Q_{GO} + Q(P_2)$ is still below that obtained in the absence of a market, as are the transplant center's quasi-rents. Hence, if $r = r_1$ or $r = r_2$, both the number of transplants performed and rents to transplant providers are, in fact, reduced by the presence of a market. Thus, in these two cases, the interests of the patients are in harmony with the profit incentive of the transplant center: both prefer altruism.

When compensation per procedure is sufficiently high ($r = r_3$), however, an interesting result is obtained. In this case, the profit maximizing level of procedures is $Q_{GS} + Q_{GO} + Q(p_3)$ (where p_3 is the price per organ paid to those who accept compensation), which exceeds the quantity of organs obtained in the absence of a market. Thus, formation of an organ market increases the number of transplants performed. However, the rents earned by transplant providers may well be below those associated with solely altruistic supply. To see this, note that profits decline when a market is introduced (even in the continued presence of monopsony with a constant rate of reimbursement) whenever compensation to those providers who expect compensation exceeds the sum of the margins earned on the number of transplants performed in excess of the number undertaken with uncompensated donations only.

An examination of Figure 2 illustrates the factors that can simultaneously lead to diminished rents and increased numbers of transplants. Recall that the area above MC_T and below r from $Q = 0$ to $Q = Q_{GS} + Q_{GO} + Q(p^*)$ is the quasi-rent in the relevant market environment, while the rent with no market is just $(r - MC)(Q_{MA} + Q_{GS} + Q_{GO})$. Consequently, profits fall with a market whenever the area labelled A is larger than the area labelled B. This result is most likely to occur when (i) Q_{MA} is "large"; (ii) Q_{GO} is "large", and; (iii) the self-interested providers' supply of organs $Q(p)$ is relatively price elastic.²⁰ As none of these requirements appears particularly unlikely, one is led to conclude that, even when the monopsony in organ procurement is maintained, opposition to organ markets by health care providers can be explained on the basis of self-interest even when a market would lead to an increase in the profit-maximizing number of procedures performed. Thus, altruism at one stage of production can serve the purpose of greed at another.

The preceding analysis, which shows that provider rents may plausibly decline with a market for organs even when the reimbursement rate is not adjusted and unregulated monopsony in organ acquisition is maintained, is strengthened substantially if an organ market precipitates other structural changes in this industry. For example, it seems likely that the formation of organ markets would lead

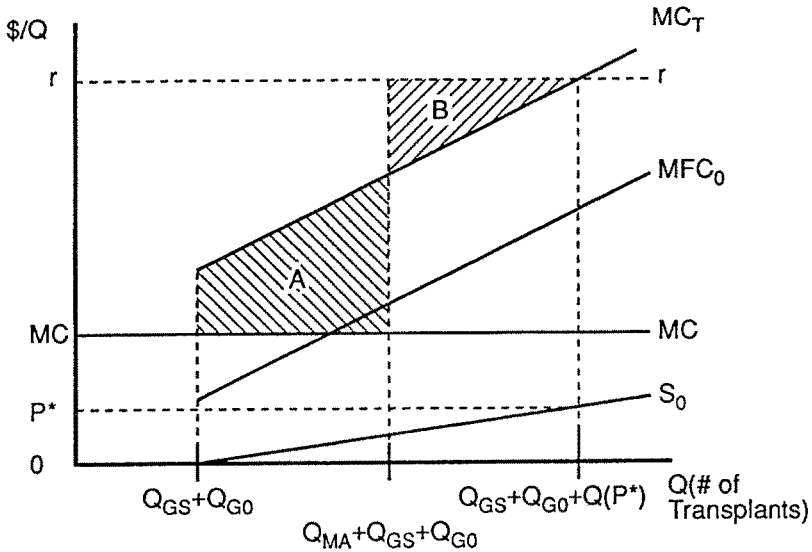


Fig. 2. Diminished rents and increased transplants with a market.

to a diminution if not elimination of the monopsony power held by existing transplant centers as profit-seeking organ procurement firms begin to vie on a national market. Obviously, if this market-structure effect accompanies the emergence of organ markets, both the increase in the number of organs harvested and the reduction in profits to transplant centers will greatly exceed those shown in Figure 2. In this event, the social welfare case for organ markets becomes even stronger as does the profit incentive of the medical community to oppose them.

IV. Conclusion

In this paper, we have critically examined the ethical arguments against adoption of a market-based system of cadaveric organ procurement. Without exception, these arguments have been shown to be suspect. At the same time, we have shown that hospitals and physicians who are the suppliers of organ transplants (and the principal opponents of a market-based system of organ procurement) are likely to have an economic incentive to favor the current altruistic system. That is, profits may well be higher under the current system, despite the shortage conditions it creates, than under a market optimum with increased transplants.

Thus, a serious ethical issue emerges. Should hospitals and physicians, who have a financial stake in the current inefficient system, continue to oppose adoption of a market-based system of organ procurement on the basis of questionable ethical concerns? If the market mechanism is capable of yielding a greater number of organs for transplantation than the current system (as it almost certainly is), then its adoption would save numerous lives and significantly reduce the costs (both human and financial) of treating a variety of serious diseases. Why such a system

should be judged inferior on moral or ethical grounds to a system whose sole virtue is that it denies compensation to organ suppliers and their families is far from obvious. The time has come for more logical and informed debate on alternative organ procurement systems.

Notes

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¹ This bill, sponsored by then-Senator Albert Gore states: "It shall be unlawful for any person to knowingly acquire, receive or otherwise transfer any human organ for valuable consideration for use in human transplantation if the transfer affects interstate commerce".

² See Denise (1985).

³ Peters (1991) estimates that, in 1989, 1,878 patients died as a result of the shortage of transplantable organs. Moreover, as with any shortage, sensitive issues involving the allocation of the available supply arise. See McCartney (1993).

⁴ See Barnett and Kaserman (1992).

⁵ See Schwindt and Vining (1986). Transplant specialists are a small constituency within the AMA. Nevertheless, the Association has an incentive to promote the interest of even a very small constituency if such activities are not detrimental to the interest of other members. And, in this case, the general interest of AMA members may be served by the appearance that physicians support altruism over financial inducements.

⁶ See Denise (1985).

⁷ The list of ethical issues with which we deal is far from exhaustive. Other arguments of an ethical nature can be found in the extent literature. See, for example, Blair and Kaserman (1991). The three issues discussed here, however, appear to be the most common ones. Our intention is not to rebut all possible ethical objections to organ markets but, rather, to suggest the basic lack of logical support that exists for such objections.

⁸ Moreover, the current system fosters an undesirable atmosphere of emotional coercion within families. Living related donors may agree to donate only under intense pressure from family members.

⁹ Hence, we ignore the issue of "tissue matching" between organs and transplant recipients. Conceivably, though, drugs and medical care increase the probability of a successful transplant given any initial degree of tissue compatibility.

¹⁰ Under United Network for Organ Sharing (UNOS) guidelines there are two situations in which harvested organs are transplanted outside a given center's region: (1) the center does not have an acceptable recipient, or (2) some other region has a patient who is a perfect tissue match for the organ. Because these situations occur infrequently, most organs are transplanted in the harvesting region. See McCartney (1993).

¹¹ Needless to say, numerous groups are involved in this process. To the extent that these groups share the income derived from transplants in essentially predetermined proportions, however, our simplification is not injurious to the underlying arguments to follow.

¹² These fees, which vary somewhat by region to reflect labor cost differences, are essentially of a cost plus or average cost character. A typical payment by HCFA for a kidney transplant in the late 1980s was around \$40,000, and was not predicated on transplant success, hospitalization duration, transplant volume or other similar factors.

¹³ More formally, we assume that the number of potential organ recipients is just equal to the number of patients who could medically benefit from the procedure and, as statistics show, this pool greatly exceeds the number of organs available currently. Hence, "demand" will play only a tangential role in our analysis, because the organ transplant market does not clear.

¹⁴ There is weak evidence that such behavior has occurred in blood markets (see Denise, 1982), and some survey evidence indicates that organ markets might experience similar behavior (see Pessemier, Bemmaor and Hanssens, 1977, and Titmus, 1971). On the other hand, Hansmann (1989) argues that

the empirical evidence on blood is ambiguous and that the experience with blood does not carry over well to organ donation.

¹⁵ Classes other than these listed below are conceivable, but we believe our list is sufficient.

¹⁶ The incentive to extract rents in performing transplant procedures may exist whether hospitals are for-profit or not-for-profit. In the latter case, rents extracted in one activity can be used to subsidize other activities. Such rents also increase opportunities for hospital administrators to engage in utility-maximizing discretionary behavior. Indeed, such agency problems may well be greater in not-for-profit hospitals. In addition, some of these rents may be captured by transplant surgeons. See McCartney (1993) for evidence that this is the case.

¹⁷ This leads to an incentive for individual providers to expand transplants with a zero price of organs, an impulse quite similar (but much more easily controlled) to that of firms engaged in a cartel.

¹⁸ These assumptions "stack the deck" against finding a profit motive for opposition to organ transplants. If formation of a market led to collapse of monopsony or a lower compensation rate, opposition to a market is explained immediately. In addition, we avoid the added complication of allowing r to increase to cover positive organ prices if a market is formed. It should be noted, however, that the current reimbursement scheme includes payments for procurement costs, and that, with altruistic supply, these costs run about \$7,000 per transplant. A market could well produce reduced procurement costs, in which case a fixed reimbursement could amount to an increase in compensation. See Blair and Kaserman (1991).

¹⁹ The vertical height of the MFC_o curve at $Q_{GS} + Q_{GO}$ is $P'(O) Q_{GO} > 0$, where $P'(O)$ is the slope of the inverse self interested supply curve $P(Q)$ at $Q = 0$.

²⁰ A technical issue arises here. If $Q_{GS} + Q_{GO} + Q(p^*)$ exceeds the number of potential recipients of transplants, area A is reduced by this constraint, increasing opposition to a market further.

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