

*The results of the cadaver market imply that prohibiting any kind of payment for transplant organs is killing a lot of people.*

# Paying for Bodies, But Not for Organs

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A recent series of scandals at medical schools and funeral homes has revealed that people handling dead bodies are removing organs and tissues without the knowledge or consent of family members. Cadavers donated to medical schools in California, Texas, and Louisiana have been siphoned off into the lucrative market for body parts, with some of the heads ending up at plastic surgery workshops and some of the torsos being blown up on military proving grounds. Similarly, funeral homes in New York, New Jersey, and North Carolina have been caught harvesting spines, veins, tendons, bones, and skin for the lucrative market in transplantable tissues. Not surprisingly, tissue brokers dealing with these funeral homes have not been scrupulous in ensuring that the bones and other tissues are free of disease, raising fears that transplant recipients may have been infected with HIV and hepatitis.

What is the solution to this problem, according to politicians, the media, and the public? More regulation, of course. In the wake of the scandal at the University of California, Los Angeles, the State of California appointed a task force to make recommendations for reforming the system of body donations. The task force recommended technical solutions such as more security cameras, better recordkeeping, and implanting bar-coded computer chips into donated body parts. There have also been proposals to monitor funeral

homes more closely as well as to prohibit them from participating in body and tissue donations altogether. Finally, Congress is considering the “Safe Tissue Act,” which would more strictly regulate the fees charged by tissue brokers, better track the distribution of body parts, and increase the penalties for forging documents. This legislation would make the market for body parts more closely resemble the stringently regulated market for major organs.

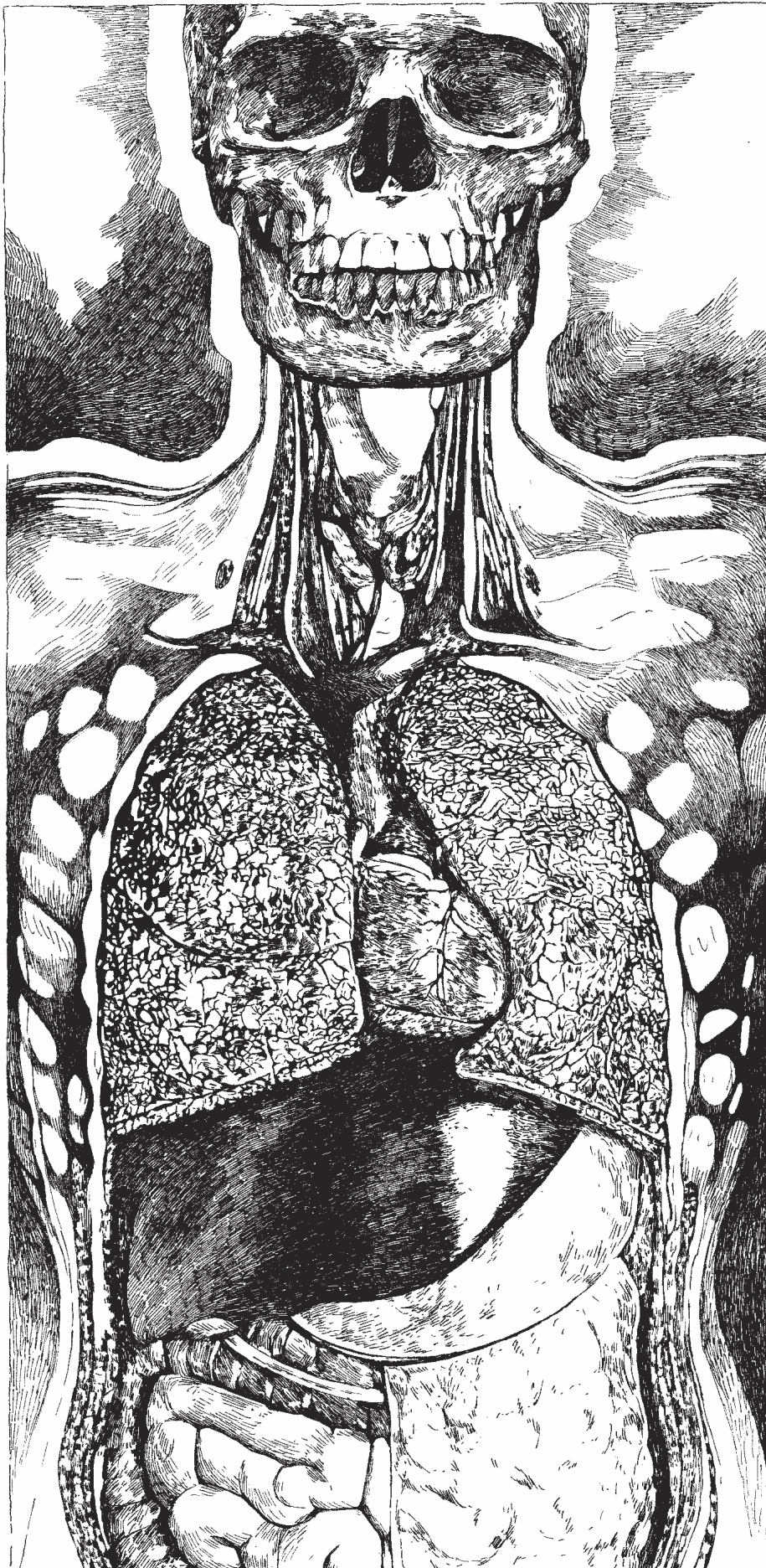
These proposals ignore the fact that the scandals at medical schools and funeral homes are fueled by government regulations that create incentives for gray market activities. Government regulations encourage whole body donations and discourage partial body donations, producing surpluses of cadavers at medical schools and shortages of badly needed organs and other body parts elsewhere. Scandals are almost inevitable given the arbitrage opportunities from buying (or stealing) body parts where they are plentiful and selling them where they are scarce.

## THE GLUT OF CADAVERS

Scandals like the one at UCLA arise because medical schools often have a surplus of cadavers while other institutions cannot find the tissues and body parts they need via markets. According to *USA Today*, Tulane Medical School typically receives “about three times the number of bodies it needs,” leading Tulane to sell its “surplus bodies” to body brokers. One of the reasons for the glut of cadavers at medical schools is that most states allow government officials to donate unclaimed bodies to medical schools, often specifying which schools are eligible for the bodies. For example, if people die in Michigan without having expressed their preferences con-

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cerning the disposition of their bodies, state law delegates the donation decision to others beginning with decedents' spouses and ending with individuals who are "authorized or under obligation to dispose of the body." This last category is a wild card that exists in almost every state, allowing medical examiners and other government officials to send unclaimed bodies to medical schools.

At the same time, government regulations have created a shortage of tissues and other body parts outside of medical schools. In particular, the 1984 National Organ Transplant Act prohibits any payment to either living donors or families of cadaver donors for organs or other tissues, punishable by fines or jail time. Setting the price of donated organs at zero has created a chronic shortage of organs, leading to an estimated 7,000 avoidable deaths per year. This federal law has also eliminated any variation in the price paid to donors across states. For example, Pennsylvania toyed with the idea of offering to pay \$300 toward the funeral costs of organ donors, but never enacted it because government officials feared that it might violate the federal law.

In contrast, government regulations allow donors of whole bodies to be compensated in ways that are illegal for donors of organs, tissues, and other body parts, providing even more fuel for the scandals. In particular, there is no prohibition on paying for the burial or cremation of bodies donated to medical schools or for memorial services following their disposition. While the Organ Transplant Act prohibits any person from transferring organs for "valuable consideration," no such prohibition exists in the Uniform Anatomical Gift Act of 1968, which governs whole body donations. Hence, society is willing to pay for organs, tissue, and body parts, but only as part of a package deal. Because the average price of a direct cremation in U.S. metropolitan areas is roughly \$1,000, these programs are offering a financial benefit that is larger than the amount considered by Pennsylvania for organ donors and

similar to the amount that David Kaserman and A. H. Barnett, in their 2002 book *The U.S. Organ Procurement System*, estimated would be needed to eliminate the shortage of kidneys.

**FINANCIAL BENEFITS** The decision to donate bodies to medical science is usually characterized by the popular press as being purely altruistic. For example, a *Boston Globe* reporter quotes one woman as saying she donated her father's body to Boston University because he was "amazed at the medical revelations and miracles that his long life allowed him to witness," and would have liked the idea of

reject bodies that have had organs or tissues removed, the decision to donate an organ will be costly for a family that otherwise would have donated the whole body. The Organ Transplant Act requires donors to give organs for free, so donors are actually required to incur extra costs in order to donate organs and other tissues.

If potential whole body donors respond to financial incentives, then we ought to see more body donations in areas with high funeral prices. Because the price of funerals is higher in states that impose significant regulatory barriers to the entry of new funeral firms (see "Breathing Life into the Funeral Mar-

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"helping humankind for generations to come." She mentions, however, that Boston University provided a "Catholic burial for him."

Regina Lee's book, *Anatomical Gift: Whole Body Donation Guide*, is more explicit about the financial benefits of whole body donation. Indeed, the front cover describes the decision as both a "personal one and an inexpensive funeral alternative."

While donor programs will pay for either cremation or burial, she warns that "if organs are harvested from a human body, the family is then financially responsible for disposition of the remaining body." Because most medical schools will

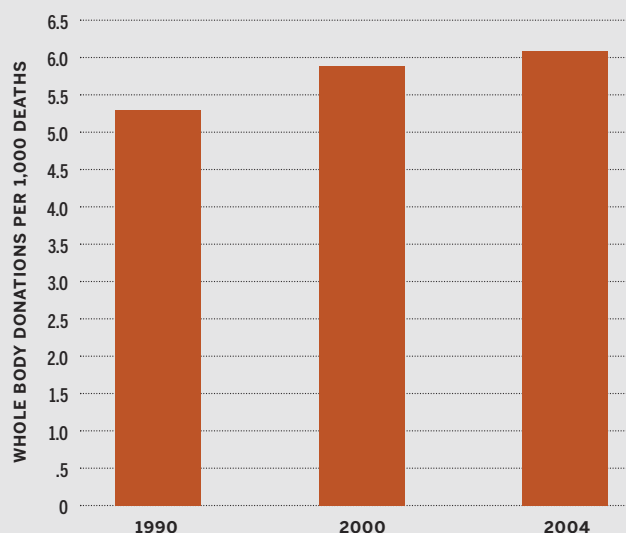
ket," Spring 2003), we ought to see more whole body donations (and fewer organ and tissue donations) in states with more stringent funeral regulations. This insight offers us a test of the conventional wisdom that body and organ donations are purely altruistic decisions — a notion that, if false, is killing a whole lot of people.

**FINANCIAL INCENTIVES** A recent Institute of Medicine report, *Organ Donation: Opportunities for Action*, recommends that financial incentives should not be used to increase the supply of transplantable organs. The chairman of the Nation-

Figure 1

### Whole Body Donation

Various years



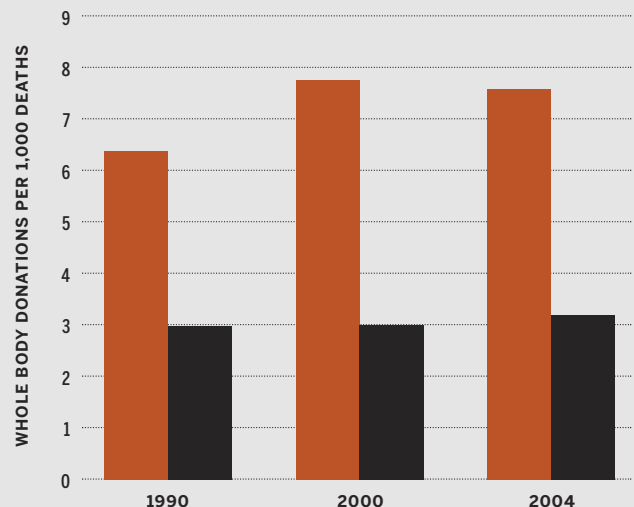
SOURCE: Authors' research

Figure 2

### Whole Body Donation and Funeral Regulations

Various years

Stringently regulated states Less regulated states



SOURCE: Authors' research

al Kidney Foundation, Charles B. Fruit, applauded the report in a June 26, 2006 *USA Today* op-ed, arguing that financial incentives “could move people to view organs as commodities, diminish altruistic donations and lead to the potential exploitation of lower income individuals.” Furthermore, he argues that there is virtually no evidence that financial incentives would increase the supply of organs and opposes any experiments that would test their effectiveness.

Proponents of financial incentives are caught in a Catch-22. Policymakers are unwilling to experiment with market incentives until researchers can show them that financial incentives would increase the supply of organs. But researchers cannot produce the evidence they demand without running experiments that vary the incentives to see how families react to them. Fortunately, funeral regulations provide natural variation in the financial incentive to donate whole bodies to medical schools.

### **ARE REGULATIONS SNATCHING BODIES FROM THE GRAVE?**

To estimate the determinants of whole body donations, we asked state vital records departments to send us information on the disposition of bodies. In many states, only three categories of disposition appear on death certificates: burial, cremation, and other. In other states, the death certificates include a separate category for whole body donation. As a result, we were able to collect information on the number of whole body donations and deaths from the following 21 states: Alabama, Arizona, Arkansas, Colorado, Delaware, Florida, Georgia, Idaho, Kentucky, Maine, Michigan, Minnesota, Nebraska, Nevada, New Mexico, North Dakota, Texas, Utah, Vermont, Washington, and Wisconsin.

Figure 1 presents the average rate of whole body donations in these states in 1990, 2000, and 2004. The average donation rate was 5.33 bodies per thousand deaths in 1990, rising to 5.86 in 2000 and 6.10 in 2004. Given that approximately 2.5 million Americans die each year, our results imply that roughly 15,000 bodies are donated to medical schools and other government-approved institutions each year.

If potential donors respond to financial incentives, then these donations will be unevenly distributed across the country. In particular, we should see higher donation rates in states with stringent funeral regulations because donors could save more money on funerals in those states. While many states impose significant barriers to the entry of new funeral firms, others leave them relatively unregulated. We define regulated states as those requiring either funeral firms to have embalming preparation rooms or funeral directors to be embalmers, and unregulated states as having neither requirement. The six states in our sample that have relatively unregulated funeral markets are Arkansas, Colorado, Florida, Nevada, New Mexico, and Washington. Figure 2 presents average whole body donation rates in regulated and unregulated states. The differences are stunning, with more than twice as many bodies being donated in stringently regulated states than in unregulated ones in each of the years.

*Table 1*

## **Regression Analysis of Whole Body Donations**

(Dependent variable: whole body donations per 1,000 deaths)

	1990	2000
Stringent funeral regulations (1=yes)	1.524 (0.98)	4.941 (7.71)***
(1/Nearest anatomy program (miles))	8.128 (5.40)***	5.483 (3.56)***
Cannot donate unclaimed bodies (1=yes)	-2.607 (2.12)**	-0.201 (0.27)
College (%)	0.070 (1.15)	0.126 (4.09)***
Poverty (%)	-0.034 (0.95)	-0.012 (0.21)
Native (%)	0.051 (1.38)	-0.019 (0.96)
Elderly (%)	0.025 (0.59)	-0.016 (0.43)
Urban (%)	0.035 (2.68)**	0.017 (1.95)*
Catholic (%)	0.013 (0.36)	-0.045 (1.60)
Jewish (%)	-0.203 (3.26)***	-0.199 (2.89)***
Evangelical (%)	-0.029 (0.92)	-0.042 (2.27)**
Mainline Protestant (%)	-0.121 (3.01)***	-0.061 (2.06)*
Constant	-0.668 (0.24)	2.009 (0.96)
Observations	1395	1395
R-squared	0.321	0.344

NOTE: The parentheses contain robust t-statistics corrected for clustering at the state level. All regressions are weighted by resident deaths.

\* indicates significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

Table 1 presents regression results using data from 1,395 counties in the 21 states in our sample. The dependent variable is the number of whole body donations per thousand resident deaths in each county. Our explanatory variables of central interest are dummy variables for whether states have stringent funeral regulations and for whether states prohibit government officials from donating unclaimed bodies to medical schools. We also include a variable for the distance of the county from the nearest body donation program. The rest of the explanatory variables are socio-demographic measures taken from the 1990 and 2000 U.S. Census and measures of religious affiliation taken from the 1990 and 2000 Census of Religions.

The regressions present evidence that state regulations have powerful effects on whole body donations when other factors such as education and religious affiliation are held constant. In the regression using 2000 data, we find that res-

idents in states with more stringent funeral regulations donate 4.9 more bodies per thousand deaths than those in unregulated states. This difference is statistically significant and economically meaningful. It indicates that financial considerations are an important component of the donation decision, not a negligible factor in an essentially altruistic decision. Indeed, our estimate implies that high funeral prices in the 38 states with stringent funeral regulations increased the number of donations by 8,400 bodies. While the effect using 1990 data is not statistically significant, it was statistically significant using body donations in 2004 as the dependent variable.

Prohibiting government officials from donating bodies to medical schools is statistically significant in the regres-

### **BALANCING THE INCENTIVES**

It is not surprising to us that more stringent funeral regulations lead to more whole body donations because — as Lee says in her book — whole body donation is an “inexpensive funeral alternative.” Raising the price of burials and cremations by imposing stringent regulations should induce consumers to increase their demand for alternative funeral arrangements, leading to more whole body donations. Because donating organs or tissue usually precludes donating bodies to medical schools, stringent funeral regulations should also reduce the supply of transplantable organs, tissues, and other body parts. Indeed, Lee explicitly warns people planning to donate whole bodies not to donate the organs or other tissues. There is a lot of empirical evidence that stringent funeral regulations harm

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sion using 1990 data, with its estimated coefficient implying that this prohibition reduced donations by 2.6 bodies per thousand deaths, on average. However, the effect disappears in the regression using the 2000 data. The number of miles from the nearest body donation program is statistically significant in both regressions. Our estimates imply that the probability of donating a body increases at an increasing rate as people live closer to a major medical school. One possible explanation for this pattern is financial — most donor programs only pay for transporting bodies locally, raising the cost of donating bodies for people living further from donor programs. Another possibility is that people living locally are more likely to be familiar with the medical school, making them more confident that bodies would be treated respectfully. Finally, donation rates tend to be higher in urban areas and in counties with higher concentrations of college graduates and lower concentrations of Jews and Protestants.

We suspect that some of the differences in the regression results between 1990 and 2000 are due to the rising importance of the Internet and to more aggressive marketing by medical schools, perhaps because of the competition from the growing number of organ donations. Lee’s book was published in 1997 and elaborate websites detailing the benefits of donating whole bodies began to proliferate in the 1990s. These changes would be expected to increase the importance of funeral regulations and flatten the distance gradient of donations, which is consistent with the regression results. In general, we suspect that the number of donations became more dependent upon the decisions of consumers as knowledge of these programs spread and medical schools became less reliant on government officials donating bodies.

consumers in the pocketbook. Now there is evidence that stringent funeral regulations also reduce the chances of people waiting for kidneys and other organs.

Stringent funeral regulations are often characterized by their defenders as protecting consumers by ensuring high-quality funerals. For example, low-cost cremation firms in Florida have been disparaged by traditional funeral homes as being little more than guys with station wagons hauling bodies to crematories. In 2000, the funeral industry in Florida lobbied unsuccessfully for new business regulations that would have eliminated the low-cost cremation firms. Our results imply that eliminating them would have induced more families to donate their relatives’ bodies to medical schools. It is a poignant example of the fact that consumers are harmed by legislation that eliminates low-cost services under the pretext of protecting consumers.

**TOO MANY BODIES** By increasing the supply of whole bodies, government regulations fueled the body-parts scandals in California, Texas, and Louisiana. State regulations guiding whole body donations specify the types of institutions that can receive bodies, often channeling them to large medical schools in the state. Also, stringent funeral regulations induce many families to opt for body donations. As a result, some medical schools are inundated with bodies, leading them to use the bodies in ways that have low marginal benefits and to treat them as less valuable than they really are. At the same time, other institutions such as the military, the automobile industry, and medical device manufacturers are scrambling to find body parts. This situation is ripe for scandal.

Government regulations have created strange neighbors, where a surplus of medical school cadavers lives side-by-side

with a shortage of tissue and body parts. Not surprisingly, the property line is difficult to enforce given the powerful incentives to smuggle body parts across this border. The taskforce on the UCLA scandal recommended strengthening the border by adding security cameras and bar codes. A better solution would be to eliminate the asymmetric treatment of whole and partial body donations. That would eliminate the need to build walls between government-favored institutions such as medical schools and other equally honorable institutions that need cadavers, organs, and tissues for transplant, research, and even public displays. If UCLA had been forced to pay more for its cadavers, it would not have treated them so cavalierly, perhaps even choosing voluntarily to install security cameras and add bars codes if it made economic sense to do so.

**TOO FEW ORGANS** Most economists believe that the tragic shortage of transplantable organs is due to a lack of market incentives. In this case, the shortage could be eliminated by offering modest payments for families to donate the organs of their deceased relatives. Sadly, for the thousands who die waiting for organs each year, economists face articulate opponents who fervently oppose market incentives to elicit more donations. The Institute of Medicine committee on body donation says that “every society draws lines separating things treated as commodities from things that should not be treated as ‘for sale’.” In making its recommendations, the committee drew its line believing that modest payments for organ donations would lead to the “commodification of body parts,” which they argue would impose costs on society that “could be substantial,” albeit ones that are “difficult (perhaps impossible) to quantify.”

The committee also opposes pilot studies of the effect of financial incentives, agreeing with the Kidney Foundation’s Fruit that “once we start down the road of treating organs like commodities, there’s no turning back.” However, medical schools have been traveling down that road for quite a while, having replaced the body snatchers of the 19th century with favorable government regulations of the 20th century. In particular, medical schools have been allowed to compensate whole body donors with free funerals and elaborate memorial ceremonies while other institutions are barred from doing so, not to mention that government officials often donate unclaimed bodies directly to medical schools in most states.

How can it be ethical to compensate donors of whole bodies in this way and yet unethical to offer similar compensation to organ donors? This asymmetry in the treatment of partial and whole body donations is almost surely driven by the self-interest of medical schools and other powerful institutions, not by grandiose ethical principles. It requires somersaults of

logic to explain how this bizarre asymmetry contributes to the dignity of human beings.

The Institution of Medicine committee also “strongly doubts that paying for organs would substantially increase the supply of transplantable organs, notwithstanding the common assumption to the contrary, especially among economists.” They explicitly reject proposals to give donors help in defraying funeral expenses, arguing that it would be perceived as lifting the ban on selling organs. They fear that paying donors – even indirectly – might undermine the altruistic motivation to donate organs, leading to a decrease in supply. In particular, the committee fears that “families would question whether their decision to donate was motivated by the desire to save the life of others or by the funeral benefit.” In other words, introducing financial incentives might reduce the supply of organs because families do not want to appear to be donating them for the money. The committee concedes that these are “empirical questions to which answers are lacking,” leading it to be opposed to financial incentives principally because it is better to be safe than sorry.

Answers to these questions can be found by looking at whole body donations. In this paper, we present evidence that families respond to financial incentives in making whole body donation decisions. Surely if modest payments can coax families to donate whole bodies, similar payments would also coax families to donate organs, tissues, and other body parts. Also, families are proud of these gifts, often highlighting them in obituaries, despite the often sizable financial benefit of not having to pay for funerals. We think that families will feel similarly about donating organs under a system where procurement agencies help with funeral expenses. In both cases, families will stress how their relatives would have liked the idea of helping others, mentioning only briefly – if at all – that the medical school or procurement agency helped with the funeral.

We believe that the asymmetric treatment of whole and partial body donations is ethically indefensible and economically inefficient, fueling medical school scandals and causing cadavers and organs to be wasted. We recommend that donors of organs be offered modest payments, similar to what they would have received had they donated the whole body. We also believe that the anatomical gift statutes should be revised to take away the special status of medical schools as the recipients of unclaimed bodies, and also question the wisdom of having governments donate bodies of individuals who never consented to have their bodies used in these ways. More generally, we believe that human dignity would be enhanced by relying more heavily on consensual systems of organ and body donations based on market incentives. **R**

## Readings

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