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A Market for Kidneys?
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U.S. federal law has long banned any compensation for human organs, but with the demand for kidney transplants far outstripping the number of donors, some economists are urging the adoption of market-based innovations to increase supply.

One of these is the University of Buffalo's Julio Elias, who argues that, distasteful or not, monetary incentives are the most efficient way to boost the number of organs available for transplant, and should be introduced. On the other side, Harvard University's Alvin Roth argues that cultural mores -- repugnance -- preclude buying and selling of organs. Instead, he says, alternative arrangements, such as so-called organ exchanges, might be a better solution.

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Julio Elias writes: The only feasible way to eliminate the large queues in the market for kidney transplants is by significantly increasing the supply of kidneys. The introduction of monetary incentives could increase the supply of organs efficiently to eliminate the large queues, and it would do so without increasing the total cost of kidney transplant surgery by a large percent, as Gary Becker and I show in a paper on the potential of markets for organs.

Even though the benefits of eliminating the organ shortage are significant, many people have opposed proposals to pay for organs, a practice prohibited under present law in almost every country.

Some critics argue that payment is "immoral" because it involves the "commodification of body parts, or that the poor will be "coerced." Others are opposed because they simply do not like the idea of the existence of a market for organs. However, conclusions about the morality of using prices to encourage supply or ration demand have changed in the past when they were shown to be effective. One example is a carbon tax to cut pollution; another is the use of willingness to pay to reduce the risk of death to measure the (statistical) value of life. Attitudes about using prices to help
eliminate the shortage of organs would also change, I am confident, when it is shown how efficiently prices would solve this problem.

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Alvin Roth writes: Selling organs is illegal in most countries. Legalizing kidney sales faces substantial, perhaps insuperable obstacles. Just as you can't sell yourself into indentured servitude anymore, some transactions are illegal because enough people find them repugnant. But many people are in urgent need of kidney transplants, so it's helpful to think about steps to relieve the shortage now.

Kidneys for transplantation come from either deceased or living donors (a healthy person has two kidneys and can remain healthy with one). Some ways to increase the number of deceased donor kidneys include changing how donations are solicited (e.g. introducing opt-out rather than opt-in donor decisions), changing when kidneys are "harvested" (after heart-death, as well as brain-death), and changing which organs are selected (e.g. older patients might profit from organs from donors older than are now considered).

There would be more live-donor transplants if everyone who wanted to donate a kidney to someone could do so, but a healthy person's kidney is often incompatible with his or her intended donor. So, one way economists have helped is in helping organize kidney exchanges, which allow incompatible patient-donor pairs to exchange with other such pairs. I'll talk more about this work (with my economist colleagues Tayfun S&ouml;mez, and M. Utku &uuml;ner and many medical colleagues) in my next post.

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Julio Elias is an assistant professor in the economics department at the University at Buffalo. He is also an affiliated researcher in the university's Center of Excellence on Human Capital and Economic Growth and Development. He teaches health economics and microeconomics theory. His recent work, with Gary S. Becker of the University of Chicago, has focused on markets for organs, as well as the non-monetary benefits and social returns on education. He received his doctorate in economics from the University of Chicago in 2005 and a bachelor's in economics from Universidad Torcuato Di Tella in 1996.

Julio Elias writes: In an attempt to increase cadaveric organ donations, some nations have tried to overcome the objections of heirs by enacting into law the principle of "implied consent." However, even with the capture of all potential deceased donor organs, the gap will not be closed.

Most organ procurements efforts in the U.S. have been concentrated on increasing the pool of altruistic donors, such as expanding living donor inclusion criteria and organ donor awareness campaigns. However, all these efforts have failed to increase the pool of donors significantly to alleviate the growing shortage of kidneys and prevent large numbers of people from dying while waiting for a transplant.

I agree with Al: Many people will be horrified by any proposal that allows for monetary compensations for organs and this represents a cost to society. But this does not mean that these costs overwhelm the benefits of eliminating the organ shortage. To my knowledge there are no good estimates of these "repugnancy costs." Even so, I believe they are relatively small when weighted against the number of lives
works in game theory, experimental economics, and market design. The best
known of the markets he has designed (or, in this case, redesigned) is the
National Resident Matching Program, through which approximately 20,000
doctors a year find their first employment as residents. He was involved in the
reorganization of the market for gastroenterology fellows, which started
using a clearinghouse in 2006. He is one
of the founders and designers of the
New England Program for Kidney
Exchange, for incompatible patient-
donor pairs.

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Alvin Roth writes: I agree with Julio that there probably
aren't enough potential deceased donors to supply all needed
kidneys. There are already more live donors than deceased
donors in the U.S. Kidney exchange is a way to increase live-
donor transplants.

Before 2004, in just a few cases an incompatible patient-donor
pair and their surgeon were able to locate another such pair
and arrange an exchange in which the donor in each pair
could give a kidney to the patient in the other. In 2004
and I published an article
exploring how a centralized kidney exchange could permit
transplantation of many more kidneys. In subsequent work we
discovered that when the market is thick enough -- when a
large number of patient-donor pairs has been assembled --
almost all feasible transplants can be accomplished through
exchanges among just two or three patient-donor pairs at a
time, and through chains of exchange. We've helped
surgeons Frank Delmonico and Mike Rees organize regional
kidney exchanges (NEPKE and APD) which now unite
dozens of transplant centers, and there is movement towards
a national exchange. Dr. Bob Montgomery in Baltimore and
Steve Woodie in Ohio and their colleagues have also been
pioneers; some description and history are here. (Read more
about paired donations in a recent Wall Street Journal article.)

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Julio Elias writes: The current system of live organ
transplants resembles an autarkic economy in which patients
in need of an organ transplant are constrained to the organs
available in the pool of friends and relatives. The kidney exchange system developed by Al and others is a
barter system, and clearly will provide an improvement over the current system.

But a general conclusion of economics is that barter is an inferior system when compared to a money
system, since barter requires the coincidence of wants. With the use of computers, and a national registry,
mutilateral barter is a good possibility, but still less efficient than using general purchasing power; i.e., a
market. The main disadvantages of the kidney exchange system are the limitations that only kidneys from
relatives and friends can be used and that the exchange must happen at the same time. A market-based
exchange does not have such serious limitations.

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Alvin Roth writes: No economist could disagree with Julio that, in general, unrestricted monetary markets have enormous ability to meet human wants. As he points out, with kidney exchange we're trying to achieve many of the benefits of a market without using money. We're able to make progress because kidney exchange thus avoids the repugnance that kidney sales arouse. We're slowly relaxing some constraints like the simultaneity of all transplants in every exchange: The Alliance for Paired Donation has recently begun a "never ending" altruistic donor chain that is still going on.

As market designers, my colleagues and I are often faced with constraints. (We have helped design non-monetary but market-like allocation procedures that assign children to schools in NYC and Boston and operate similarly to labor-market clearinghouses we’ve helped design for new doctors and older ones.) Sometimes constraints can be removed; sometimes, it looks more promising to work around them.

If Julio and his colleagues want to remove the legal constraint on buying kidneys, my guess is that they will want to understand better the sources of repugnance that have led to laws against such sales in so many countries.

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Julio Elias writes: The potential benefits of a market system may have seemed low compared to the costs of implementing a new system when the legal constraints were implemented, since the shortage was not so severe. Currently the kidney waiting list is over 73,000 persons, and in the last 10 years it has grown at an annual rate of 7%. Additionally, improvements in the safety and effectiveness in kidney transplantation have significantly increased the potential benefits.

Programs of financial compensation for living organ donors can take many forms. However, there are certain features that are likely to be common across any compensation system of organ procurement. More importantly, many of those features are in effect in the current system, like the role of the physician and transplant centers in the proper screening and selection of donors, in post-transplant care, and in other steps of the process of organ procurement. A national registry of potential donors is also likely to be assembled with all the relevant information of potential and excluded donors. In a decentralized system, the price of a kidney would be set at the levels that would eliminate the excess demand. Building on the value of life literature, with Gary Becker, we estimate that the price for a kidney would be about $15,000.

The present system imposes an intolerable burden on many very ill individuals, some of whom will die while waiting for a donor. It is time to reconsider the law.

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Alvin Roth writes: It is illegal to sell horsemeat for human consumption in California, not because a persuasive case was made that the costs exceed the benefits, but because 4,670,524 people voted to make it illegal in a 1998 referendum. This and many other examples persuade me there is something about repugnance that we economists need to understand.

Whenever I help design a market, I learn a lot from existing practices, even as I set out to modify them. Explaining what economists already know doesn't inevitably win the day, although such explanations are certainly useful.

So it doesn't seem to me inevitable that Julio and his colleagues’ arguments will lead, surely or soon, to a change in the laws banning kidney sales. And if kidney sales remain banned for a long time, other
developments (such as cures for kidney diseases, or breakthroughs in using pig kidneys for transplantation) may arrive in time to make kidney sales, and human transplants themselves, unnecessary. This is one reason I have been putting my energy into developing kidney exchange: It's a way to combine economics with surgical know-how to achieve real gains soon. I'll be glad if something even better eventually becomes possible. It's good to attack big problems from all angles. Thanks, Julio, for the discussion.

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Should the U.S. allow people to sell their kidneys? Vote, and share your views in an online reader forum.

Write to Matt Phillips at matt.phillips@wsj.com