

2015

Nevada Should Opt-in to Organ Policy Changes

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Nevada Should Opt-in to Organ Policy Changes

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Spring 2015
Brookings Public Policy Capstone
Prepared Under The Guidance of Dr. Bradley Wimmer

Abstract

Organ donation shortages are a problem in Nevada. A shift in policy towards an opt-out system could more than double the number of registered organ donors in Nevada. A *Libertarian Paternalistic* strategy would allow potential donors to express their preference for organ donations more accurately. Currently Nevada abides by an opt-in policy where people are only organ donors if they explicitly request to become donors. Under an opt-out policy, people would be presumed organ donors unless they requested not to be donors. Policy changes during the 2015 Legislative session were a good start but failed to fully utilize behavioral economics to resolve the shortage. This paper aggregates studies determining how and why people make decisions, explores potential organ donation strategies, examines opinion polls, and explains organ markets and kidney transplants more generally to suggest Nevada shift to an opt-out model for organ donations. Reform to statewide donor policy is needed; at stake are the lives of Nevada citizens currently on the waiting list and those who will be added in the coming years.

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SB206, A Step In The Right Direction

Nevada 2015 legislative session made significant changes to Nevada's organ donation policy. The approval of SB 206 changed the way citizens registered as organ donors and eased the process of remaining a donor once a person had chosen to register. Previously, when an applicant filed for a license at the Department of Motor Vehicles (DMV) the person was asked if they would like to become an organ donor under an opt-in model. An opt-in model does not donate a person's organ unless the person explicitly consents. The question was posed as, "would you like to be an organ donor" followed by the mandated response of "yes" or "no" (Hammond, 2015). When people agreed to be organ donors they were presented with the same question every time they renewed their license. Because a person is presented with the same question again, often times a person would not renew the agreement to remain an organ donor. The result was people "falling off the radar" (Ferreria, 2015).

As a result of SB 206, the question will now be asked differently and organ donors will remain on the registered donor list unless they decide to remove themselves. The new policy follows the opt-in model asking the question, "would you like to be an organ donor" with one caveat. Instead of mandating a choice of "yes" or "no", the new response options are "yes" or "not at this time." For those who have not previously chosen to be organ donors they will be asked if they would like to be organ donors. People who have previously chosen to be organ donors will now be notified that their status as an organ donor remains unchanged unless they wish to change it.

Public policy should aim to make these types of interactions efficient by allowing people to choose freely while optimizing societal outcomes. Thaler and Sunstein (2008) have coined this strategy *libertarian paternalism*. By definition these terms seem to be in contradiction. From a

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traditional economics standpoint, people are rational actors who think through their decisions objectively to optimize their positions. While there are many instances where actors decide using a cost-benefit analysis to make a decision, this is not always the case. Inherent biases such as the framing of a question, ambiguous projected outcomes, status quo biases towards defaults and even mindless choosing show that people are not always the ideal actors economists would hope exist. Instead people will sometimes succumb to *nudges* in one direction or another based on the framing of questions or the ease of making a decision in one direction.

It is important that these nudges do not drastically raise the transaction cost of acting freely. “To count as a mere nudge, the intervention must be cheap and easy to avoid” (Thaler and Sunstein, 6). If the nudge becomes a mandate it has gone too far. For instance, banning cigarettes would not be a nudge. However, putting a cancer warning on a pack on cigarettes may push people to think more about their decision to smoke without making smoking inaccessible making it a nudge. SB 206 both nudges a person in a desirable direction and reduces the transaction costs associated with becoming an organ donor.

The reason why SB 206 would increase organ donations relies on behavioral psychology. It is important to note that most people have indicated that they want to be organ donors. Calandrillo (2004) showed that 80% of US citizens believe organ donations are a good thing. Kurtz and Saks (1996) found the percentage to be even higher. Kurtz and Saks analyzed both a National Gallup poll and Iowa procurement study that asked respondents about their level of support for organ donations. The findings of the Gallup poll were that 85% of those surveyed supported organ donations. The Iowa procurement study found 97% of respondents were supporters of organ donations. A Department of Health and Human Health Survey (2012) found 94.9% of those polled were strongly in support of organ donations. Because of the lack of

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Nevada specific data, the nation-wide Gallup poll data and NHHS polls may be more applicable to assessing Nevada attitudes towards organ donations.

Even though attitudes are in favor of organ donations, Nevadans donate organs at a relatively low rate. Nevada donates fewer organs on a per-capita basis than other states of similar size. Arkansas, with a population similar to Nevada, registers 58% of potential donors.

Oklahoma registers 64% (DLA, 2014). In Nevada the percentage of eligible donors is 40%. This places Nevada 40th among US states according to the National Donor Designation Report Card (DLA, 2014).

Kate McCullough, of the Nevada Donor Network, noted that there is a shortage of 123,000 kidneys nationwide, with a shortage of 550 annually in Nevada. The shortfall in number of organs donated continues to increase overtime. McCullough (2015) noted that 6 people are added to the national donor waiting list every hour, and 21 people die every day due to lack of access to an organ.

There are several reasons a person may need a kidney transplant. Rising life expectancies enable core organs, such as the heart and brain that are not regularly transplanted, to outlive organs that are equally essential to living, such as a kidney or liver. Increases in obesity rates and the prevalence of diseases that target and debilitate specific organs increase demand for organ transplants. Modern medicine enables doctors to remove an organ that is no longer functioning properly and replace it with another.

If a person is on the waiting list for a kidney but needs a functional alternative more immediately, there are expensive alternatives to a kidney donation. Dialysis costs on average \$75,000 per year with more than 350,000 people receiving the treatment annually (Kaseran and

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Osterkamp, 2013)¹. Several scholars predict demand for organs will increase in the coming years. Kaseran and Osterkamp (2013) see the problem as an intricate web of various causes. Their prediction is 160,000 people will be on the waiting list nationwide for organs every year. While people wait on the list, they calculate our country will see 200,000 deaths because of a kidney shortage in the next few decades.

This paper will explain kidney transplants, the function of an existing and ideal kidney market and suggests additional policy changes stemming from similar behavioral justifications of SB206. While the recent changes are a good start, an opt-out model will not resolve the shortage. Transitioning the donor registry to an opt-out system, whereby a person is presumed to be an organ donor unless the person explicitly refuses, has the potential to substantially increase organ donations beyond current levels.

¹ Systemic problems stemming from an organ shortage are harder to quantify. Often times wealthy Americans travel to developing countries to buy a kidney. This type of black market organ tourism is only beginning to be fully understood and dealt with by international bodies. With over 10,000 illegal organs transplants occurring annually, the World Health Organization has begun an international dialogue to address the problem (López-Fraga, 2014).

Kidney Transplants: A Background

A kidney transplant is defined as “a surgical procedure in which a healthy kidney from one person is placed into another whose kidneys have stopped working” (Tilney et al. p.1). A patient must be placed on a statewide or national waiting list to receive an organ. A doctor must establish that a patient has a legitimate medical condition and needs a kidney. Insurance provider must also approve the request.

Buying and selling organs is currently illegal in the United States. Federal law makes monetary compensation for organ transfers a felony under the National Organ Transplant Act of 1984. Since no formal market exists, the organ exchange relies on donations and exchanges between donors and recipients.

To understand how to best motivate people to donate, we have to first understand why people donate. In a traditional market people respond to financial incentives. In an organ market people respond to ethical incentives. People, as rational actors, make decisions based on a set of cost-benefit analyses that includes inputs that are sometimes difficult to quantify monetarily. Rothman (2006) breaks these incentives into two categories, “extrinsic” and “intrinsic.” A Person is intrinsically motivated to give to another because it is ethical. These motivations can sometimes be trumped by financial considerations (Rothman, 2006). The process of donation often requires a donor take time off work, pay for hospital visits, and follow-ups. When a person decides these costs are greater than the value of the intrinsic good, they decide not to donate.

Transplant centers must determine the quality of donations. Two determinants of compatibility allow medical markers to predict a successful transplant. The first is Blood type. Type A can receive and donate an organ to any person with blood type A. Type B can receive and donate to any person with blood type B. Type AB can receive from either A or B but can

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only donate to AB. Type O can donate to any of the blood types, but can only receive O. (Roth, 2012). This is depicted in the figure to the right.

The Stanford Blood Center (2015) releases data on percentages of the population in each blood type.

Blood type O makes up 44% of the population. Blood type A is 42%. Blood type B is 10%. The least frequent blood type is AB with 4% of the population. Given this information Donors with blood type O are most desirable because they can donate to the largest percentage of the population. Being blood type AB makes a person most eligible to receive a donation.

The second requirement for a match is human leukocyte antigen tissue typing (HLA). While over 100 different HLA proteins exist, 6 have been shown to be most relevant in testing organ donation compatibility (Tilney, 8). This system is more complex than purely blood type. Even with perfect matching antigens a body could still reject an organ. Often times a kidney is transplanted without matching antigens yet the body still allows full integration (UC Davis Transplant Center, 2015). The discrepancies in expected outcome show a pure match is not always perfect; still an ideal match is better than a non-ideal.

Tilney et al (2005) found higher levels of similarity correlate with successful transplants, while larger differences in blood type and protein compatibility lead to lower success rates. A complete match in a paired transplant yields a 95% success rate. Partial-matches, where some proteins are not identical, yield an 85% success rate. This is compared to a cadaveric transplant, which has an 80% chance of success (Tilney et al., 12-2). Cadaveric transplants have the same matching requirements as living donations.

		Donor			
		A	B	AB	O
Recipient	A	●			●
	B		●		●
	AB	●	●	●	●
	O				●

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Roth (2012) indicates that studies have shown transplants from cadavers to living patients have lower chances of success. Ferreria (2015) hypothesizes this is due to a smaller than ideal organ donor network. A majority of paired exchanges in Nevada occur between living related people (Ferreria, 2015). Often times this is from a spouse or other individual who is compatible. Because of the patient and donors relationship, they often times have a similar genetic history. Donors and patients with similar genetic history are a closer biological match than cadaveric donations, which have no biological relationship. A cadaveric kidney recipient is on a waiting list because the recipient does not have either an eligible or willing family member to supply the kidney. Since the kidney is not from an immediate relative, it is likely less compatible based on blood type and HLA proteins leading to a lower rate of transplant success. A stronger organ network that connects more donors with recipients in need could resolve some of the compatibility issues.

Living donations from unrelated donors are much less common. When they do occur, they are the result of paired or indirect exchange. A paired exchange occurs when a biologically incompatible donor-recipient pair exchanges an organ with another biologically incompatible donor-recipient pair to receive a compatible organ. Roth (2004) explains these occur when one pair of donor-recipients would like to exchange, but are unable due to compatibility issues.

Paired exchanges are facilitated by transplant centers. The transplant center requires a pair, interested in matching with another pair to exchange organs, register their interest at the transplant centers they intend to conduct their operation (Ferreira, 2015). After having registered, transplant centers will seek out compatible pairs to connect and swap organs with.

To better understand the exchange, an example of this organ market in practice would involve a married couple from Reno who is attempting to conduct to engage in a kidney

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transplant. After testing the couples blood types and HLA compatibility, the transplant center tells the group from Reno their transplant is unlikely to be successful and refuses the transplant request. At the same time a married couple from Las Vegas were attempting to engage in a kidney transplant, but the wife and husband were not compatible. Since both husbands still wanted to donate a kidney to their wives, both pairs registered with their nearest transplant centers to find another couple with whom to exchange. After the couples from Las Vegas and Reno were paired by the transplant center based on biological compatibility, they entered transplant surgery simultaneously. During the operation the husband from Las Vegas had his kidney removed and transplanted into the wife from Reno. In a separate operating room the husband from Reno had his kidney transplanted into the wife from Las Vegas. Because paired exchanges the husbands were able to donate their kidneys to save the lives of their spouses.

These donations occur concurrently with both pairs in operating rooms undergoing surgery at the same time. Because a financial penalty cannot be imposed to encourage an organ exchange, it would be impossible to force to husband from Reno to donate his kidney after his wife had received her kidney from the exchange (Roth, 2012). If the exchange between the Las Vegas husband and Reno wife was to occur on Monday, and the exchange between the Reno husband and Las Vegas wife was planned on a Friday, there would be no way to ensure the Reno husband would still be willing to perform the operation after his wife had received her kidney. The uncertainty effectively makes concurrent operations the only option.

On a larger scale, paired exchanges can effectively facilitate living donations when couples are not compatible. In early 2015 a group of 34 couples engaged in paired exchanges (Associated Press, 2015). Through the National Kidney Registry, and various hospitals associated, the groups were able to match with better levels of compatibility. However, more

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work is needed to increase registrants in paired exchanges and strengthen the overall donor network (Ferreria, 2015).

Indirect exchanges are an alternative option between a patient who does not have a donor and an incompatible donor-recipient pair in need of a kidney. While only the couple can offer a kidney, the patient possesses something of interest for the couple. A patient can exchange his or her place on the waiting list for a kidney from the donor of the pair (Roth, 3).

When taking into account the genetic markers that make a kidney transplant successful, it is understandable why this type of exchange may be mutually beneficial. If the donor pair both have blood type O but HLA markers make them incompatible, the donor may opt for an indirect exchange. Since any blood type can receive a person with type O organs, a person on the waiting list with blood type AB and similar enough HLA markers would be an ideal candidate to receive the kidney. If the recipient were high enough on the list to make the exchange worthwhile for the donor group the partner may conduct the exchange to increase a chance a compatible cadaveric organ became available soon.

Imagine a situation where a person with blood type B had been on a waiting list for 2 years. We will call her Jessica. Since Jessica has been on the list for a long period of time, she is very likely to be close to the top. When an organ becomes available Jessica would be one of the first to be screened for compatibility. While Jessica can receive a transplant from blood type O and B, she has not been able to find a match with the desirable HLA proteins. At the same time a couple is seeking an exchange. The husband is blood type B and the wife is blood type O. Because blood type B cannot donate to blood type O, the husband is unable to donate to his wife. Given that blood type O is the most common blood type, if the wife were near the top of a waiting list it is likely a compatible cadaveric kidney would become available soon. The donor-

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pair could decide it is in their best interest for the husband to donate his kidney to Jessica in exchange for his wife receiving Jessica's spot on the waiting list.

How Organ Markets Do and Should Operate

Since an organ market does not establish a price for the good, the market must be thought of differently than traditional markets. A person donates at a price of zero, with the potential costs being discomfort and risks of uncertain externalities (CIROD, 2006). The donor's "gain" is based on the altruistic benefit of the donation. An ideal altruistic market would supply enough organs to meet demand. Because the market cannot use financial rewards to increase the supply of organs, public policy and education are used to increase the number of organs donated.

Efficiency is "the degree to which resources are used to generate the most productive outcomes" (Wheelan, 154). Mutually beneficial trade occurs when an individual can be made better off without making another person worse off (Wheelan, 155). For an organ exchange market to work an individual should be able to donate his or her organ and receive a beneficial gain without suffering a greater financial cost.

Roth (2012) looks at stable matching to understand and repair matching markets that are not operating efficiently. What distinguishes matching markets from traditional markets is that price is not the only relevant factor. Marriage is one such market because marriage requires a mutually beneficial transaction. Not only does a person have to choose a mate, the mate has to also choose them (Roth, 344). The objective becomes creating the best match for all parties involved.

Roth uses the Gale-Shapley algorithm to explain a stable market (Roth, 345). The Gale-Shapley algorithm defines a stable trade as an allocation where no individual would think they would be better off through another transaction. If a transaction were not stable, one or both actors would continue seeking out more beneficial trades.

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This understanding of markets is relevant for Organ donations because there needs to be as close to a core match as possible. Kidney exchanges are matching markets, meaning that the donors must be willing to participate in the trade and be genetically compatible. A core match exists when the donor and recipient would not be better off if they were matched with a different donor or recipient. Additionally, players must not want to go outside of the established marketplace. If a potential recipient goes outside of the exchange market it is because the exchange is not meeting their needs. They are taking with them not only an organ, but also the possibility of satisfying demand from another player in the marketplace (Roth, 346). In the context of organ markets, going out of the marketplace is an international, illegal transaction, dialysis, or death.

In the context of cadaveric exchanges, the problem is predominantly behavioral. Prior to SB 206, policy gave potential registrants the option of “yes” or “no” when presented with the choice to donate. Halpern (2013) has shown that people are more likely to go-with-the-flow and not opt into the system; he argues, “In health care, as in many other facets of life, how decision options are presented influences the decisions people make” (Halpern, 2).

While Halpern (2013) examines terminally ill patients, the behavioral psychology findings are consistent with public policy mechanisms that use status-quo biases to achieve their objectives. Participants in the Halpern study were terminally ill patients given the option of extended life care. In a response form, patients were presented with options to change their advanced directives. Advanced directives inform how doctors provide care during a time of crises. One option was to have the doctors provide life-extending care; even if it were extremely unlikely the patient would recover (Halpern 2013). For instance, if patient’s lungs were to fail or they go brain dead the option for life-extending care would direct their doctors to place them on

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breathing machines. The other option was for the doctor to pull the plug and not provide emergency extending life care.

A notable finding of Halpern (2013) is the effect a questions phrasing has on a patient's response regarding the life or death implication of how a doctor will handle his or her end-of-life care. When the default presented was that of pulling the plug, patients were more inclined not to deviate from the status quo and request extending life care. When the question was instead posed with a presumption doctors would provide extended life care, patients were much more likely to request life extending service (Halpern, 2013).

Stick-to-the-status-quo phenomena are not unique to patients in end of life care. Understanding that a person makes a decision based on the framing of a question makes it very applicable to Nevada's organ donation process. Nevada Department of Motor Vehicle policy posited the question "would you like to become an organ donor" (Kieckheffer, 2015). Similar to the findings by Halpern, Kessler and Roth (2015) people were more likely to stay non-organ donors because it was the default. The following section uses the status-quo presumption bias in favor of an opt-out organ donation policy.

Behavioral Economics In Support of an Opt-out Policy

Ulen (2014) argues public policy can effectively promote desired outcomes through three overarching tools: financial incentives, social norms and psychological framing. As previously noted, financial incentives for organ donations are illegal under the National Organ Transplant Act of 1984. However, Kaseran and Rigmar (2013) suggest financial incentives are the best way to increase the supply of organs. Like any other good, making production profitable could create an incentive for people to supply organs. A person would make the calculated decision to sell his or her organs to avoid going into debt or fund a start-up business.

Legality aside, Capron (2010) suggests a crowd-out of intrinsic motivations for donating would occur as a result of monetizing the good. Capron suggests the result would be a net decrease in supply citing two main reasons. The first is psychic shifts. Citizens would no longer see the problem as important enough to donate to because potential recipients would instead be able to purchase organs. Second are reputational shifts. In a society that values wealth, a classist stigma against donors would arise. Donors bearing a scar after surgery would be seen as needing money because they sold their organs. Individuals who do not deem the payment enough to compensate for the stigma would be less likely to register as organ donors.

Decker (2014) claims intrinsic motivations crowd-out extrinsic motivations citing an Israeli day-care study. After a day-care realized children's parents were picking up their children after a mandated dismissal time they attempted to create financial repercussions for parents. Through the institution of fines they believed parents would behave differently and pick up their children from daycare on time. Instead, the results were more students being left at the day-care passed dismissal time, which created a larger problem than they had before. Behaviorally, the parents shifted their perspective on picking up their children. Before the fine they felt obligated

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on a moral basis out of respect for the people working at the day care. When the decision became financial they saw the exchange as a calculated decision and chose to leave their children at the day-care for longer.

These studies may not be entirely predictive. The sample size for Israeli study was parents who were able to make the financial decision to continue at work and pay the daycare. People who would most likely sell their kidneys are in a greater financial bind. Either way the future does not hold legalization any time soon. In using Roth's characterization, a legalized market for the sale and purchase of organs is too "repugnant" in the eyes of U.S. citizens, thus alternatives public policy solutions must be found.

In order to develop policies not using financial incentives, framing an important tool in crafting public policy. Tversky and Kahneman (1981) tasked people to decide disease response strategies that would affect 600 people. Using two different subject groups Tversky and Kahneman framed the question in two distinct ways. In layout one, they claimed the program would either save 200 lives and has either a 33% chance of saving 600 people or a 66% chance of saving no one. In layout two they said the program would either result in the death of 400 people, or has a 33% chance no one dies and a 66% chance everyone dies.

Both of these strategies have the same mathematical odds and results. The difference is the way the information is presented to the subject. In the first layout the number of individuals who live is highlighted. The second layout highlights the number of individuals who die. When presented with the first layout 70% of people preferred to save 200 lives than risk saving more lives with a chance of saving no one. When presented with the second layout 78% of people preferred to risk the assured safety of 200 people to attempt to save everyone. The study shows that people do not always base decisions on the objective numbers presented, but rather that

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framing can shape subjects responses to questions. Public policy can use framing in a way to advance goals.

The default option can also greatly affect a person's response. Establishing a default decreases the transaction costs associated with making a tough decision that deviates from the status quo. Ulen (2014) argues as long as material transaction costs are kept low enough that they allow people the ability to choose, decision architects should have free range to establish defaults. Organ donations are ripe for a default system to increase donations. There are three principle default systems with organ donations. The first is the former Nevada system where the default is respondents remain non-organ donors. The second is the new Nevada system when a person defaults as "not an organ donor at this time." The third is a system whereby individuals are presumed organ donors unless they choose not to be. Transaction costs are kept low for those who wish to not be an organ donor under the third system. A citizen who wishes to not donate can opt-out at the DMV at the time of license registration or renewal.

Johnson and Goldstein (2003) attempt to determine if people would donate more often when the default rule for organ donations changed. To test this hypothesis they used an online survey with 161 subjects. Participants were told they had recently changed residences to new states. Because of the participant's relocation, the respondents were asked if they would like to be an organ donor. To determine which system resulted in more organ donations, each group of respondents was presented a different default system. One-third of respondents were presented an opt-in policy where the default is they are not organ donor. Then respondents were asked if they would like to become an organ donor. One third was presented an opt-out model and told the default rule established them as an organ donor. The group was then asked if they would like to not be an organ donor. The third group of respondents was told there was no default and

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presented with a mandated choice model where they had to respond either “yes” or “no” to becoming an organ donor.

The results affirm the default rule in the context of organ donations. Respondents were more than twice as likely to be registered organ donors after the questionnaire when they were told the default rule is that they are organ donors. The likelihood of becoming an organ donor was also higher for those who were told there was no default.

The empirical data supporting an opt-out policy is also persuasive. Shepard, Carroll, and Ferguson (2014) compared kidney donation levels in countries with opt-out and opt-in policies over a 13-year time period. In total, 23 countries in the study had opt-out policies and 25 required people opt-in. Their findings were significant; they showed a 5% increase in cadaveric transplants, and larger increase in total donors under an opt-out policy. Most examples of opt-out systems being implemented have shown increases in organ donations (Argentina, Italy, Russia, etc.). Countries that experienced a decline in donations also experienced a decline in the overall trust of medical professionals which impacted the likelihood potential donors would opt-out. France and Brazil are cited as having lower donations after public policy change.

Davotich (2008) and Calandrillo (2004) both conducted studies on the propensity of organ donors to not deviate from the status quo. Instead of doing something they genuinely support, based on opinion polls, they tended to go with the flow without placing much ethical consideration in their actions. A change in the policy could preserve rights based objections while materially increasing organ supplies significantly in the state.

Ferreria (2015) argues there may be a self-selection bias that makes empirical examples not as applicable to the United States. Countries with social norms making them more altruistic, such as the northern European nations that have implemented an opt-out system, may have

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adopted the policy because they were already inclined to donate. However Shepard et Al (2014), Davotich (2008) quantify the increase while accounting for self-selection bias. The two researchers found status quo bias as a larger factor than self-selection in the likelihood an opt-out policy increases organ donors.

Status quo bias has been well studied in both psychology and economics. People are more inclined default than deviate their current state of being. Thaler and Sunstein (2008) conducted studies regarding the likelihood of professors to update their IRA account information. Even though many of the professors have become married since their time of registering for retirement savings, they still list their mother as the top beneficiary. The transaction costs of changing the beneficiary require filling out paperwork, which could take up to 15 minutes. Because their current state is functioning well they are less inclined to change their default.

It is easy to understand why this could occur to people at the DMV. Take John, for example, who is going to get his license for the first time. Even though John made an appointment, the local DMV is understaffed so he has to wait an hour or so before he can take his official driving exam. During this time John is frantically studying notes, thinking about the steps of driving a car, and conversing with his mother about how great it will be once he gets his license. John then takes the driving test and passes with flying colors. As he waits in line to take his picture, eye exam and fills out more paperwork, he is not in the best situation to think about how his body will be used after his death.

Ten years later John is back at the DMV to update his license. John goes right when the DMV opens to assure he is in and out to make his 10AM meeting. There are some delays but he gets through quickly. However, because he John was thinking about his meeting he quickly

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skimmed the paperwork and only marked what he need to mark. The result was John not marking “yes” to the “would you like to be an organ donor” question. John is one of the many people who would be helped by the institution of an opt-out policy. An opt-out system would remove the unnecessary transaction costs that exist under an opt-out system.

These are the experiences of people whom are asked to be organ donors every day. The high-pressure, often times cramped environment is not the ideal situation to liberate potential organ donors and expose their true desire. Shepard et Al (2014) suggests changing the default policy is “likely to bridge the gap between people’s intentions and their behavior”(Shepard et Al, 3). If people support organ donations, changing the default would allow their choices to accurately reflect their desires.

Conclusion

Nevada should adopt an opt-out organ donation policy. The statewide shortage and recent legislative momentum make Nevada ripe for public policy change. In using a *libertarian paternalistic* strategy, changing the frame of organ donation requests will allow citizens to express their preferences accurately while preserving Nevada citizens' ability to choose freely. Absent policy change, status quo bias and default rules will shape decision makers towards not donating even if they would objectively prefer to donate their organs. Decreasing transactions costs through an opt-out policy would help the organ market function more efficiently and increase the number of organ donors. More donors mean better matches and more lives saved. Through a minor shift in policy, during the next legislative session Nevada can save the lives of those currently waiting on a Nevada donor registry.

Appendix 1: Priority Preference System Policy Recommendation

Nevada could adopt a Priority-preference system. Under this regulatory framework people who become organ donors would receive higher priority when they needed an organ donation than people who had not registered. This system could be instituted concurrently with an opt-out policy to achieve desirable results. Because financial incentives are illegal, Roth and Kessler (2015) have been attempting to craft policies that allow non-monetary compensation so as to comply with federal statute banning monetary-compensation. Israel and Singapore are countries that have implemented a priority preference system to achieve this goal. Registered donors of the two nations are given priority in receiving organs.

Roth and Kessler's (2015) findings were consistent with self-interested economics. A large portion of society registered as donors because the potential donor valued the non-pecuniary benefit of priority in the organ receiving process. This was because of the priority preference system.

Imagine a situation where two people with identical biological compatibility are on waiting lists for a kidney transplant. However, only one of the two people is a registered organ donor. Soon after both people have been placed on a waiting list one kidney becomes available of which they are both a perfect match. Under a priority preference system the registered organ donor would receive the kidney and the non-registered person would have to wait for another. The priority preference models incentive is the increased likelihood of receiving an organ. A priority preference system creates an incentive that is to some more valuable than the transaction costs of registering as an organ donor.

Limitations in enforcing contracts of donors after they are deceased could prevent priority preference systems from increasing donations. Current organ donation processes authorize next

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of kin to override the deceased prior request to become an organ donor (Ferreria, 2015). Because next of kin could veto a prior commitment, if this exemption were adopted in a Nevada model the priority mechanism may not be as effective without proper enforcement. To evaluate the effectiveness of a system with the priority loophole Roth and Kessler allowed individuals who have already benefited to opt-out, via their liaison, after their death therefore reimbursing the initial cost of donation. Roth and Kessler's concluded this loophole could completely eliminate the benefits of a priority system, citing a crowd-out of altruistic motivations when an incentive is introduced.² Structuring a system of body property rights whereby individuals were bound by their commitments to become donors could alleviate this concern.

² A potential flaw not discussed in this model is the prospect of would-be donors cheating the system. Because a person does not have to be in good health to register as an organ donor, at the first sign of health trouble they could register to gain priority. The result would be a lot of new donors, but more donors who are also in need of an organ.

Appendix 2: Strengthening Facilities and Enforcement of Paired Exchanges

Never could better facilitate concurrent and non-concurrent paired Exchanges through improved facilities and contract enforcement. Non-concurrent donor pairings are a viable solution if a patient has a loved one willing to donate. However, institutional limitations and uncertainty has deterred some perfectly matched pairs from conducting exchanges. To resolve institutional problems, medical infrastructure in Nevada would need to improve its healthcare infrastructure. Concurrent donations require more operating space and doctors. It is possible a UNLV Medical School would improve the local medical economy enough for facilities to facilitate these exchanges, but more research is needed to be conclusive.

For non-concurrent exchanges the solution is more difficult. Enforcement of a contract between a two donor pairs may reduce the uncertainty of exchanges occurring at different times. More effective enforcement of property rights and binding contracts to ensure the transaction eventually occurs would provide confidence when hospitals are not able to conduct operations concurrently. Enforcement of body property rights would also make a priority preference policy mechanism more effective.

Appendix 3: Strengthen National Donor Networks

Larger networks lead to better matches and more organ donations. As our population grows larger, compatibility declines with genetic diversification. Roth (2012) notes connecting longer chains with recipients who have paired donors, that are incompatible, means the market functions better. In 2002 a task force was started by the Nevada Attorney Generals office to look at problems with the supply chain. Nothing formal has yet to come from this process. Increased attention from the Nevada executive branch could improve the network.

One potential method would be for non-profit organizations that register donors to encourage paired exchanges among living donor candidates. At present, paired exchanges are facilitated by organ transplant centers in connection with a national network. Non-profit organizations, such as the Nevada Donor Network, do not allow registries of pairs seeking exchange with another pair. While they do register donors more generally, the addition of a portion that facilitates exchanges could encourage localized donation exchanges.

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