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Compensated Cadaver Organ Donation:

Will a small fee waiver work?

ABSTRACT: This article analyzes the use of monetary incentives to increase the supply of cadaver organs. The research focuses on whether a waiver of a driver's license fee can increase the proportion of society declaring to be a cadaver organ donor. In addition, the dynamics of organ donation are addressed using a bivariate regression to test if being a college student, religion, age, gender, income, and overall knowledge of donation has a significant impact on whether one chooses to be cadaver organ donor. Finally, the concern that a monetary and altruistic market can coexist is addressed in this research. Utilizing sample Z-statistics, it is found that a small incentive has the potential to significantly impact the number of cadaver organ donors. A significant finding is that students are more likely to become cadaver organ donors when offered the \$30 fee waiver, whereas religion, gender, and income do not statistically impact one's decision.

Acknowledgements

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A special thank you to Dr. Mark Criley for assisting in directing the ethical discussion regarding the use of monetary incentives to increase the quantity of organ donors. Including this element allows the research to expand beyond the boundaries of economics and into the realms of public policy, in which I hope the recommendations will be taken sincerely.

A special thank you to Dr. Tari Renner who assisted in gathering the phone listings utilized in this paper, which without would have prevented the research from continuing into its final stages.

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I. Introduction

On average, 21 people die every day awaiting an organ transplant (organdonor.org). In the context of economics, this phenomenon is a *shortage*, and in the world of the affected, it is the difference between life, misery, and death. Since the passage of the National Organ Transplant Act (NOTA), which prohibits the sale of organs for human transplantation, economists, philosophers, public policy experts, religious leaders, and others have debated the ethical and effective standing of this law.

Increasing the supply of cadaver organ¹ donors could help to fill some of this shortage. Recently it has been proposed that the supply of cadaver organs could be increased by introducing monetary incentives to potential cadaver organ donors. This concept has met resistance on both ethical and empirical grounds. Referencing ethics, the use of incentives has been criticized for potentially victimizing the poor, advancing the black market, and depleting altruism within society. Although this research offers an empirical analysis regarding the effectiveness of a \$30 incentive, this paper recognizes and addresses the importance of an ethical debate.

The empirical debate surrounding the use of incentives has faced unique challenges due to the inadequacy of data. With the exception of Iran, China, and India, monetary payments for organs are illegal, leading to a predominantly theoretical dialogue. This paper examines the impact of a small monetary incentive in an effort to increase the number of cadaver organ donors. The format for this paper is as follows: Section II provides a literature review on previous endeavors regarding the use of incentives to increase organ supply, Section III elaborates on the theoretical model utilized in the research, Section IV describes the data, Section V utilizes Z-test statistics to test the significance of the \$30

¹ *Living Organ Donors* donate their organs while they are still alive. They undergo a procedure to have their organs removed for transplantation. *Cadaver Organ Donors* donate their organs after their death. Their organs are removed within 24 to 48 hours after their death and then transplanted.

incentive in inducing a change in the number of cadaver organ donors. Section VI explores the impact of the fee waiver in the context of different demographic groups by utilizing binary logistic regressions, while Section VII deliberates ethical considerations. Section VIII concludes with policy ramifications and avenues for future research.

II. Literature Review

A. Titmuss and Arrow

The debate surrounding the use of incentives to increase the supply of organs has remained in the theoretical realm. Richard Titmuss (1971) was the first to entertain the notion of offering monetary compensation for human tissue, arguing that monetary incentives for organs could cause market failure. He saw monetary compensation as a health risk due to the inclination of unhealthy individuals to partake in the market. As Titmuss contested, "One might infer that, in the absence of effective tests for diseases like hepatitis, donated blood is of better quality because donors who are not paid for their blood have no incentive to conceal their illnesses" (Thorne, 2006, p. 1,342). In other words, offering incentives degrades the quality of blood since unhealthy individuals, who before were not enticed to donate out of altruism, now maintain a monetary incentive to partake in the market.

Furthermore, Titmuss feared incentives for human tissue would deplete altruistic donation, believing an altruistic and monetary market could *not* coexist (Titmuss, 1971). This axiom was founded on Titmuss's assertion that monetary markets denied individuals "the right to give" (1971).

Arrow disagreed with Titmuss when he stated "Why should it be that the creation of a market in blood would decrease the altruism embodied in giving blood? I do not find any clear answers in Titmuss" (Arrow, 1972, p.350). It can be inferred that Arrow believes that

altruistic and non-altruistic suppliers are motivated by different incentives, and that altruistic donors respond to exhortation while non-altruistic individuals respond to monetary incentives. Since the two *suppliers* respond to distinct motivators, neither subset is impacted by the introduction of the alternative.

Extended studies have investigated the debate between Arrow and Titmuss. Leider and Roth (2010) examined Americans' approval of a monetary market for organs. They concluded a majority of Americans approve of a kidney market, especially when it is regulated by a third party, in this case the government.

B. Case Studies

There are few reliable studies which offer insight into compensating organ donors. Ashkenazi, Stoler, Cohen, and Beyar (2013) investigated *The Brain-Respiratory Death Law* and *The Organ Transplantation Law*, studying their impact on organ donation in Israel. Essentially, the law works to remove disincentives which are encountered by living donors; (a) earning loss reimbursement of 40 days based on the donor's average income during the three months prior to donation, (b) a fixed transportation refund to cover commuting costs, (c) reimbursement for seven days during recovery, (d) five years reimbursement of medical, work capability loss and insurances, (e) reimbursement of five psychological consultations and treatments.

The removal of the disincentives is credited with increasing the supply of organs in the State. "Compared to previous years, in 2011 there was a significant increase in the number of deceased organ donors directly related to an increase in organ donation rate (from 7.8 to 11.4 donors per million population), in parallel to a significant increase in the number of new registered donors" (Lavee, 2013, p. 780). While the aforementioned are a

removal of disincentives, the implementation of incentives is a similar, if not identical, concept.

In conjunction with Israel, a pseudo-incentivized program has been utilized in the state of Georgia. Until recently, the state of Georgia offered a \$7 discount on driver's license registration fees to individuals who registered as organ donors. The discount was scrapped in 2005 as part of an overhaul of the driver's license registration system. Prior to this change Georgia had one of the highest registration rates for organ donation in the country (Howard, 2007). Though dangerous to assume cause and effect, the program provides contextual support that a relatively small monetary payment could increase the number of cadaver organ donors.

C. Socio-demographics

A substantial argument against the use of incentives is the concern of victimizing the poor. According to Nancy Scheper-Hughes, "the movement and flow of living donor organs -mostly kidneys- is from South to North, from poor to rich, from black and brown to white, and from female to male bodies" (Satel, 2008, p. 59). Furthermore, a journalist for the Washington Post declared "compensation for organs might exacerbate the differences [between rich and poor] turning the poor into surgical ward slaves or feudal donors for the rich" (Satel, 2008, p. 59). These concerns both relate to living donations while this study seeks to investigate the use of a monetary incentive to increase the number of cadaver organ donors.

In addition to socioeconomic status, Satel (2008) investigated different religious groups' tolerance towards compensating organ donors, focusing on Judaism, Islam, and Catholicism. Satel (2008) concludes that Judaism is the most receptive to a market for organs with Catholicism the most resistant. Regarding Islam, Satel acknowledges the

complexity within the religion noting most scholars condemn the sale of organs due to the acceptance that Allah owns the body; humans are not granted the right to sell organs they do not possess. However, Satel uncovered that a majority of Islamic scholars approve of such transactions, if faced with death (Satel, 2008).

Although individual leaders and scholars within the religion have attempted to humanize the monetary market for organs, the overall temperance of the Catholic Church towards a market-based system is negative.

"The Catholic consensus position endorses Pope John Paul II's opposition to the commercialization of human organs. The United States Conference of Catholic Bishops issued a directive asserting that living donor transplantation is acceptable, 'but economic advantages should not accrue to the donor.' The National Catholic Bioethics Center has stated the position even more forcefully, saying it 'strongly opposes any regulated market for organ sales'" (Satel, 2008, p. 162).

D. Recent Endeavors

Further research has been done investigating if monetary incentives can be utilized to increase the supply of living organ donors. Becker and Elias (2007) found that monetary incentives could increase the supply of organs for transplant sufficiently to eliminate the large queues in the organ market, and it would do so while increasing the overall cost of transplant surgery by no more than 12%. In estimating the cost of living kidneys and livers they found that an average cost for a kidney and liver transplantation was \$160,000 and \$335,000 respectively. However, these studies utilized international comparisons from countries that have different political stances on organ donation. For instance, the Iranian government has outlawed monetary compensation for cadaver organs on the grounds that it violates the Koran. Although an admirable attempt, utilizing estimates and international comparisons to compute an equilibrium price for living organs subjects the researcher to cultural variation in the data.

Adams (1999) investigated monetary incentives for organ donation in the United States gathering data from 392 students at Auburn University. Students were asked at what price they would be willing to sell their organs finding the market clearing price for kidneys and livers to be \$1,000. However, a bias exists in the research because the surveyed sample is not an accurate representation of the population. Despite the empirical obstacles, Thorne (2006) acknowledges a vast majority of economists recognize the absence of an organ market has led to a quantity shortage.

E. Cadaver Organ Donation

The previous works investigated incentives to increase living organ donation. This research investigates how to increase cadaver organ donation. Thaler (2008) argued how a more competent donation system could increase the number of donors in the United States, arguing for an “opt-out” system contrary to an “opt-in.” The reason for this change is that Thaler (2008) believes individual states could increase the quantity of organs using Kurtz and Saks (1996) finding that;

“Ninety-Seven percent of respondents indicated their general support for transplantation. Of those who expressed their support, only 43% had the box checked on their driver’s license. Of those who stated they personally wanted to donate their organs only 64% had marked their driver’s license and only 36% had signed an organ donor card.”

This finding allows Thaler (2008) to conclude that the concrete steps necessary to register as an organ donor deter otherwise willing donors from registering. Recognizing the importance of the default, replacing an “opt-in” with an “opt-out” could have a dramatic impact. Despite its usefulness, Thaler (2008) recognizes the improbability of crafting a presumed consent, politically. His takeaway is that recognizing the “incentive” needed to entice organ donation is relatively small. For instance, switching from an “opt-in” vs. “opt-

out", all else equal, a state could experience an increase in donation by 16%. This suggests alternate incentives could have just as, if not a more powerful impact. With this finding in mind this research examines if waiving a \$30 driver license fee in the state of Illinois could entice individuals to register to become cadaver organ donors.

III. Theory

The theoretical construct for this research is based on the neoclassical supply and demand framework. This framework theorizes that an increase in the price of an organ results in an increase in the quantity supplied. The model maintains the following assumptions: (a) the quality of the organs will be the same whether sold or donated, (b) altruistic donors will continue to supply even after a market is introduced², (c) when markets are banned, not only is the cost of the good zero, but no other costs are required to procure the donated good, (d) nothing can be done to increase the supply of organs when markets are banned (Pindyck and Rubinfeld, 1989).

These assumptions have received criticism, specifically regarding the assertion that altruistic donations will exist after the introduction of monetary incentives and that the quality remains constant. As Titmuss (1971) expressed, the quality of the good may deteriorate in the market, since individuals now have an incentive to hide deficiencies. Second, the model assumes costs do not exist with altruistic donations. The model also treats individuals on a dichotomous scale; either as altruistic or non-altruistic. There is reason to believe the introduction of monetary incentives might turn altruistic donors into monetary enticed individuals. Even though the overall number of cadaver organs might increase, the quantity of altruistic donors could wither.

² Note: This directly contradicts Titmuss

Using this framework the research investigates if waiving a \$30 driver's license fee can increase the supply of cadaver organ donors. Although this is a similar concept to a payment of schedules, the incentivized program is unique. First, respondents are trading a future commodity, which entails uncertainty in the transaction.³ Second, unlike the payment of schedules system utilized by Adams (1999), the incentive program is a *take it or leave it* option. Respondents have one avenue with which to donate their cadavers, the Illinois Department of Motor Vehicles (DMV)⁴. Future research might explore how a specific incentivize program compares to an unregulated market where individuals are able to negotiate prices.

Finally, the model utilized in this research could alter the demand curve for organs as shown in Figure 1. The demand curve in Figure 1 depicts individuals in need of cadaver organs and assumes perfect inelasticity in accordance with Adams (1999). The supply curve depicts the increase in supply due to an increase in price. Note the supply curve does not begin at the graph's origin due to the presence of altruistic donors. This paper will investigate the effectiveness of the \$30 dollar incentive and if the incentive could help in moving towards market equilibrium.

IV. Data

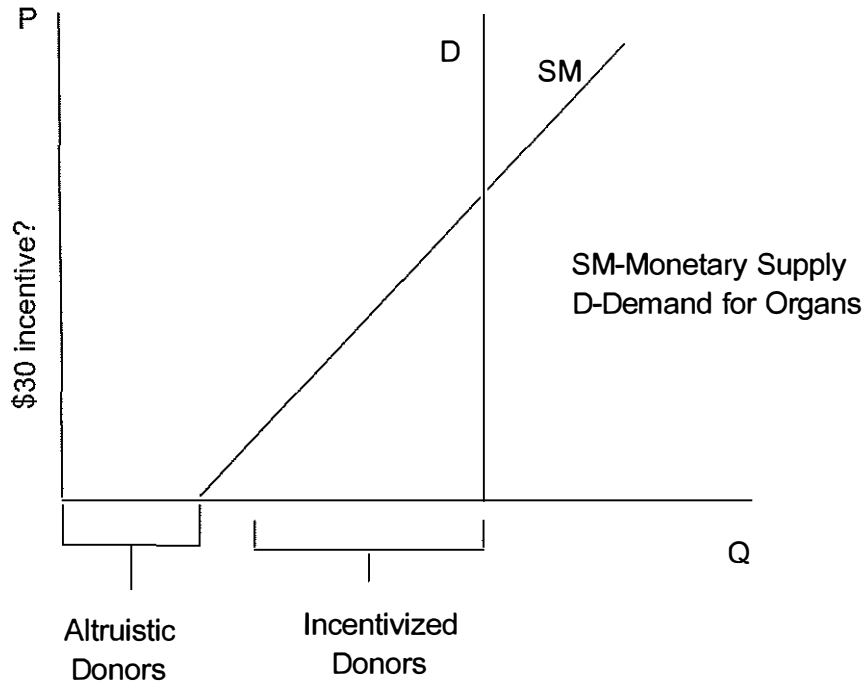
Two separate surveys were administered to students at Illinois Wesleyan University (IWU) and to residents of Bloomington IL during the fall of 2014 and the spring of 2015 to collect the data used in this study. The IWU survey was administered online while the Bloomington IL resident survey was administered through random digit dialing techniques to Bloomington

³ A difference exists between the cost of a cadaver organ and a living organ. To donate a living organ there are higher opportunity costs; having to take time off of work, risk, and health concerns. These issues are irrelevant for cadaver organ donors and therefore may assist in explaining why the price of a cadaver organ is less than a living organ. Future research could expand on this topic.

⁴ These alterations to a market place, are areas for future research

Figure 1

Theoretical Model



residents. Overall, 498 participants completed either the phone or online survey⁵. The methods utilized in this research are similar to that employed by Adams's (1999) with the difference that it investigates monetary incentives as they relate to the supply of cadaver organs and the effectiveness of a *take-it or leave-it* mechanism.

To begin, respondents were grouped based on specific answers during the survey. First, respondents were asked if they were cadaver organ donors. Depending on their response, respondents from both subsets were asked different questions. Residents of Bloomington who were cadaver organs were asked:

*Seeing how you are already an organ donor would you still agree to be an organ donor even if the Illinois DMV offered non-organ donors payment of \$30 in order to entice them into donation?*⁶

⁵ Only students could complete the online survey

⁶ Note that the respondents from the fall (online) survey were not asked this question

This question is an attempt to address Titmuss's (1971) concern that a monetary and altruistic market cannot co-exist. If a significant number of respondents indicate they would cease being organ donors, this supports the claim that the two markets cannot coexist.

Non-organ donors were asked the following question:

*In Illinois, individuals have to pay a \$30 fee when they get or renew their driver's license. With this in mind, if the Illinois Department of Motor Vehicles was to waive your fee the next time you went to renew or get your license, only if you agreed to be an organ donor, would you then become an organ donor to cancel the \$30 fee?*⁷

This question investigates the effectiveness of a small incentive to induce cadaver organ donation. Complete reproductions of both surveys can be found in Appendix A.

A. Summary Data

Data collected from the two experimental treatments is summarized based on demographic information and whether the respondent were already organ donors as shown in Table 1. Among the 193 males in the study 65.8% (127) were already organ donors, while 28.60% (50) were not. Among 295 women, 66.10% (195) were already organ donors, while 23.72% (70) were not. Regarding religion, of the 215 Protestants 74.9% (161) were organ donors, of the 106 Catholics 63.20% (67) were organ donors, and of 158 Other Non-Christians 57.59% (91) were already organ donors.

⁷ Note the respondents from the fall survey were asked instead, *In Illinois, persons 21-60 have to pay a \$30 fee when they get their driver's license. With this in mind, if the Illinois Department of Motor Vehicles was to waive your fee, only if you became an organ donor, **would you then** become an organ donor to cancel the \$30 fee?* The questions are essentially identical except for minor changes in the syntax.

Table 1 Organ Donors Among Different Demographics			
	Cadaver Organ Donor?	Number (Total 498)	Percentage
Gender	Men	Total (193)	-
	Yes	127	65.8%
	No	50	28.60%
	Women	Total (295)	-
	Yes	195	66.10%
	No	70	23.72%
Religion	Catholics	Total (106)	-
	Yes	67	63.20%
	No	35	33.00%
	Protestants	Total (215)	-
	Yes	161	74.9%
	No	40	18.6%
	Other Non-Christian	Total (158)	-
	Yes	91	57.59%
	No	40	25.31%

V. Significance Tests

Before testing if significant differences exist amongst the subsets in likelihood of being an organ donor, the data is first compared against DMV information on cadaver organ donors to ensure a representative sample. A two sample Z-statistic is calculated to test the null hypothesis that the difference between the two proportions is statistically insignificant (equal to zero). The results of this test can be found in Table 2 showing that the sample is representative of the general population.

Table 2 Testing the significant between samples		
Population	Proportion of Cadaver Donors	Results
Bloomington	64.05%	z-value=0.945
Collected Sample	66.06%	p-value=0.1723
Testing the significant between gender		
Gender	Proportion of Cadaver Donors	Results
Men	65.80%	z-value=0.07
Women	66.10%	p-value=0.472

As is also shown in Table 1 differences do exist across gender in regards to organ donation, however using a two sample Z-statistic it can be concluded that the differences are insignificant as displayed in Table 2.

The same procedure is utilized to discern if a significant difference exists among religions. Here it is found that differences do exist based on religious affiliation as Protestants are more likely to be organ donors relative to Catholics and to other non-Christian religions. Between Catholics and Other non-Christian religions no statistical difference is found. These results are displayed in Table 3.

Table 3 Testing for Significance between religion		
Religion	Proportion	Results (Protestants and Other)
Protestants	74.9%	z-value=2.11 probability=0.017**
Catholics	63.20%	
		Results (Protestants and Other)
Protestants	74.9%	z-value=3.52 probability=0.000***
Other Non-Christian	57.59%	
		Results (Catholics and Other)
Catholics	63.20%	z-value=0.92 probability=0.179
Other Non-Christian	57.59%	
*Significant at the 90% Confidence Interval Level, **Significant at the 95% Confidence Interval Level, *** Significant at the 99% Confidence Interval Level		

In looking at how the \$30 fee waiver incentivizes a change in behavior Table 4 summarizes responses by gender and religion. According to Table 4, both men and women are responsive to the \$30 incentive but it appears men are more responsive than women.

When examining different religions, it appears Catholics, Protestants, and the "Other Non-Christians" are enticed by the \$30 incentive with more opting to become cadaver organ donors. Surprisingly, Catholics are likely to respond to the incentive, which contradicts earlier assertions made in the literature

Table 4 Men and Women currently not Organ Donors-Introduced to Monetary Incentive			
		Response to \$30 Incentive	
Gender	Total No's (Per Gender)	Become Organ Donors	Remain No
Men	50	62% (31)	38% (19)
Women	70	58.57% (41)	41.43% (29)
Religion	Total No's (Per Religion)	Become Organ Donors	Remain No
Catholic	35	68.57% (24)	31.42% (11)
Protestant	40	60.00% (24)	40.00% (16)
Other Non-Christian	40	55% (22)	45% (18)

In testing for differences in groups a Z-statistic is calculated to test if the \$30 incentive has a significant impact amongst different subsets Table 5 provides data indicating whether the \$30 incentive had a significant impact for the population as a whole and individual subsets. Column 1 in Table 5 indicates which subset is studied and the number in parentheses indicates the total number in the subset. Column 2 presents the total number of individuals from the subsets who are organ donors before the introduction of the \$30 incentive. Column 3 contains the new percentage of individuals who become an organ donor due to the introduction of the \$30 incentive while column 4 tests to see if the difference between the original and new proportion is significant.

The results of the Z-statistic displays that the \$30 dollar incentive is significant at the 1% level meaning it can increase the proportion of cadaver organ donors. Although the data set is cross-sectional and utilizes a small number of cases, the finding gives positive empirical evidence that a minor incentive can increase the proportion of organ donors among a population.

Table 5 Is the \$30 Incentive Significant for Each Subset?			
Column 1	Column 2	Column 3	Column 4
Population	Original Yes- Before Incentive	New Number of Yes because \$30 incentive	Significance ? (One Sample z-test)
Total	66.06%	80.52%	z-statistic=6.814 Probability=0.00***
(498)	329	401=329+ 72	-
Men	65.80%	81.87%	z-statistic=4.71 Probability=0.00***
(193)	127	158=1127 +31	-
Women	66.10%	80.00%	z-statistic=5.04 Probability=0.00***
(295)	195	236=195+ 41	-
Protestants	74.88%	86.05%	z-statistic=3.78 Probability=0.00***
(215)	161	185=161+ 24	-
Catholics	63.21%	85.85%	z-statistic=4.83 Probability=0.00***
(106)	67	91=67+24	-
"Other Non- Christian"	57.59%	84.78%%	z-statistic=6.92 Probability=0.00***
(158)	91	113=91+2 2	
The number in the parentheses indicates what total the percentage is calculated from. *Significant at the 90% Confidence Interval, **Significant at the 95% Confidence Interval, *** Significant at the 99% Level			

In breaking down the sample population into sub-groups it is found each subset is enticed by the \$30 incentive. This suggests that willingness to accept the \$30 incentive is not limited by gender or religiosity. This finding differs from previous literature that religious groups have different attitudes towards cadaver organ donation.

Table 6 attempts to address Titmuss concern that a significant reduction in altruistic donors will occur because of the monetary incentive. These results suggest that when examining the population as a whole, the introduction of the monetary market does deplete altruistic donations. The same holds true when analyzing each of the different subsets

Table 6 Will introduction of monetary market cause altruistic donors to deplete?			
Column 1 Population	Column 2 Original Yes- Before Market	Column 3 Loss of altruistic donors	Column 4 Significance ? (One Sample z-test)
Total	100%	86.61%	z-statistic=19.85 Probability=0.00***
(254)	254	220=254- 34	-
Men	100%	86.14%	z-statistic=12.98 Probability=0.00***
(101)	101	87=101-14	-
Women	100%	87.00%	z-statistic=14.57 Probability=0.00***
(146)	146	127=146- 19	-
Protestants	100%	88.55%	z-statistic=12.02 Probability=0.00***
(131)	131	116=131- 15	-
Catholics	100%	93.18%	z-statistic=3.88 Probability=0.00***
(44)	44	41=44-3	-
"Other Non- Christian"	100%	81.94%	z-statistic=14.55 Probability=0.00***
72	72	59=72-13	
The number in the parentheses indicates what total the percentage is calculated from. *Significant at the 90% Confidence Interval, **Significant at the 95% Confidence Interval, *** Significant at the 99% Level			

However, these findings must be taken with a degree of caution. While administering the phone banking survey, there was some confusion amongst respondents if they themselves would need to partake in the monetary market. In short, some respondents may have indicated "no" to remaining organ donors because they themselves believed they would have to take the monetary incentive, when instead the question itself was meant to entice non-organ donors. Future endeavors should explore if the findings of this paper are accurate portrayals or a result a survey design flaw.

VI. Multivariate Empirical Model

A multivariate empirical model is estimated to explore if the willingness to accept the \$30 incentive is impacted by socio-demographic factors, while also examining if willingness

to remain an organ donor is impacted by the same demographics. Table 7 provides information regarding the variables used to estimate the regression equations⁸.

Table 7 Information regarding Regressions			
Variable	Type	Code	Definition
Become an organ donor because of \$30 incentive	Dependent	1=Yes, becomes organ donor 0=No, does not become an organ donor	If the respondent would become an organ donor because of the \$30 incentive.
Willingness to remain an organ donor	Dependent	1=Yes Stay an organ donor 0=No, does not stay an organ donor	
Student	Independent	1=Student 0=Non-Student	Indicated if the respondent was a student
Catholic	Independent	1=Catholic 0=Other	Examines if the respondent is Catholic
White	Independent	1=Caucasian 0=Other	Indicates if the respondent is Caucasian
Protestant	Independent	1=Protestant 0=Other	Indicates if the respondent is a Protestant
Knowledge of Someone on Dialysis	Independent	1=Know Someone on kidney dialysis 0=Other	Indicates if the person knows someone on kidney dialysis
Male	Independent	1=Respondent is Male 0=Other	Indicates if the respondent is male
Age	Independent	Continuous Variable	Gives the age of the respondent

$$\text{Regression One} \\ (YES_ACCEPTING_\$30) = C + \beta_1(WHITE) + \beta_2(STUDENT) + \beta_3(CATHOLIC) + \beta_4(PROTESTANT) + e$$

The results from *Regression One* are located in Table 8. When the independent variables are observed in concert, only the STUDENT variable is significant. Overall, being a student increases the likelihood of accepting the \$30 incentive. This means that participants who were students were more likely to accept the \$30 incentive relative to nonstudents. The independent variables WHITE, CATHOLIC, and PROTESTANT are all insignificant indicating that these descriptors do not impact the decision to be an organ donor among those willing to accept the \$30 incentive to be an organ donor. Again, this finding has positive implications for policy ramifications. This is additional evidence that the

⁸ Since the dependent measurement, is dichotomous in nature a binary logistic regression is utilized.

\$30 incentive would not be limited by gender or religiosity, an idea which is elaborated in the conclusions.

Table 8 Binary Logistic Regression (Willingness to Accept \$30 Incentive)	
C	-0.746
<i>Probability</i>	(0.117)
White	0.617
<i>Probability</i>	(0.180)
Student	0.716
<i>Probability</i>	(0.074)*
Catholic	0.728
<i>Probability</i>	(0.136)
Protestant	0.393
<i>Probability</i>	(0.399)
Cox & Snell R Square	0.066
N	121
*Significant at the 90% Confidence Interval Level,**Significant at the 95% Confidence Interval Level, *** Significant at the 99% Confidence Interval Level	

The second regression investigates if willingness to remain an organ donor after the introduction of the monetary incentive is impacted by demographic characteristics⁹. For instance, perhaps those who practice a religion will cease to be organ donors after the introduction of the market.

$$\begin{aligned}
 &\text{Regression TWO} \\
 &(Willingness_To_Remain_An_Organ_Donor) = C + \beta_1(WHITE) + \beta_2(KNOW_SOMEONE_ON_DIALYSIS) \\
 &\quad + \beta_3(AGE) + \beta_4(CATHOLIC) + \beta_5(PROTESTANT) + \beta_4(MALE) + e
 \end{aligned}$$

Overall, it appears knowledge of someone on kidney dialysis makes an individual less likely to remain an organ donor after the introduction of the market. However, being Catholic or Protestant makes an individual more likely to remain an organ donor after the introduction of the market, which directly contradicts previous theories. A significant finding is that race, religion, and age does not impact ones willingness to remain an organ donor after the implementation of the monetary incentive. Recall, there are concerns regarding this questions validity.

⁹ This regression only utilized data which was collected from the spring.

Table 9 Binary Logistic Regression (Willingness to Remain and Organ Donor)	
C	1.611
<i>Probability</i>	<i>(0.044)**</i>
White	0.527
<i>Probability</i>	<i>(0.283)</i>
Know Someone on Dialysis	-0.849
<i>Probability</i>	<i>(0.032)**</i>
Age	-0.010
<i>Probability</i>	<i>(0.351)</i>
Catholic	1.499**
<i>Probability</i>	<i>0.030</i>
Protestant	0.756*
<i>Probability</i>	<i>0.065</i>
Male	0.092
<i>Probability</i>	<i>0.818</i>
Cox & Snell R Square	0.061
N	254
*Significant at the 90% Confidence Interval Level,**Significant at the 95% Confidence Interval Level, *** Significant at the 99% Confidence Interval Level	

Evidence that the data to this question might be subject to substantial noise is the finding that knowing someone on kidney dialysis will make an individual less likely to remain an organ donor. Theoretically, if one knows someone suffering on kidney dialysis, why would they be more likely to cease being organ donor due to a government intervention to remove the organ shortage? Further research is necessary to truly understand this result from this survey question.

VII. Ethical Considerations

Returning to the two major objections to a monetary incentive program (the exploitation and religious freedom objections) this paper seeks to shed some light on these concerns in view of the collected data. Although this is not an exhaustive list, addressing these objections adds validity in utilizing the aforementioned policy as an approach to close the gap in the observed organ shortage. As these two concerns are considered it is important to highlight the differences in living and cadaver organ donation.

A. The Exploitation Objection

The first and most recurrent objection is the exploitation objection or the concern “the poor would become the walking organ banks of the well-to-do” (Satel, 2008). In addressing this objection, differentiate between the terms equality and exploitation. As Lawlor (2011) accounts, the term exploitation is often confused with equality.

“We can, for example, object that the rich can buy organs while the poor cannot, without having this having anything to do with exploitation, or without claiming that those who do buy organs are exploiting the poor, or anyone else. If I claim that it is unfair and unjust that the rich can buy health care not available to the poor I am complaining about inequality” (Lawlor, 252, 2011).

Essentially, the objection of equality claims the rich have the financial means to buy organs but the poor cannot afford to do so. This concern of equality is not applicable to the suggested policy because a free-market is not developed. The DMV simply waives the driver’s license fee for the individual, enticing them into donation. Organs are still transplanted on a need-be basis. However, a sincere objection can be made that the poor are more likely to participate in the program, as opposed to the wealthy. First, this research analyzed if willingness to accept the \$30 incentive was related to economic standing finding that income does not explain why individuals choose to become organ donors. For sake of discussion, suggest the findings are inadequate. Perhaps economically disadvantaged individuals are more likely to accept the incentive compared to the wealthier. Greasley (2012) coins the term “defected consent,” explaining why the use of monetary incentives, in a living organ donation context causes exploitation stating:

“The problem of exploitation in this context is often referred to as an issue of ‘defective consent’ on the part of the vendor, whose poverty and desperation precludes him from making a ‘truly autonomous’ choice to exchange his organ for money” (Greasley, 52, 2012).

It can be inferred that the dire circumstances of the poor prevent the individual from reaching a rational, independent decision. However, the aforementioned was in regards to living donation in which payment to the supplier surpasses thousands of dollars. The suggested policy in this research utilizes a \$30 incentive to induce people to become cadaver organ donors, not living organ donors. If an individual has strong convictions against donation, would \$30 truly suppress autonomy?

In addition, Greasley (2012) accounts that exploitation requires the party surrender something of use, which can include items like sex, labor, organs, etc. However, in the case of cadaver donation, the vendor never forgoes a useable good. All organs remain intact and only after the demise of the individual are transplantable organs removed in a proper manner. Since organs have no use to a deceased body the individual never surrenders a useable good and is therefore incapable of being exploited.

There are additional problems with the exploitation objection. As Lawlor (2011) accounts, the argument assumes that the person donating the organ (in the context of living donation), is the exploited party. However, this perception is incomplete from examining the following passage,

“Mark Schofield has waited for more than four years for the kidney transplant which would save his life and let him see his children grow up. But after finally losing patience, he flew to the Philippines with 40,000 in savings ready to buy a new organ from a living donor. The 43-year-old-hopes to find a poverty-stricken Filipino desperate enough to sell him a kidney” (Lawlor, 252).

In the aforementioned, it is unclear which party is exploited. Common belief asserts the Filipino as the exploited party, but as Lawlor accounts exploitation derives from the individual possessing the greatest amount of bargaining power. For instance, if Mr. Schofield has ten economically disadvantaged Filipinos willing to sell their kidneys, he is in

position to exploit. However, if only one supplier exists, Mr. Schofield, in a direr situation, is the exploited party.

Essentially, the practice of selling organs is not inherently exploitative, but it is the balance of power which proliferates the possibility. Again, the aforementioned only holds true in a free-market. This policy is unique because it recommends monetary compensation for cadaver organs and the DMV utilizes an incentive structure to entice cadaver organ donation. Organs are useless to an individual upon their demise, making it impossible to exploit a cadaver organ donor.

B. Religious Freedom Objection

The second objection is the religious freedom objection. A person from a faith which disapproves of organ donation might claim the suggested policy is unlawful and discriminates against their religion since, for religious reasons, they are not allowed to partake in the \$30 program. Currently, for many government programs in the United States, exclusion is common practice. For instance, Jehovah Witnesses are not allowed to enlist in a military branch, yet the government provides a military to fulfil its constitutional obligation to provide for the common defense. More importantly, the army is providing financial resources to individuals which can reach thousands of dollars. For instance, private soldiers earn over \$18,000 per year and on advancement could earn more than \$50,000 per year. It therefore seems inconsistent to accept one government program but to deny the other, especially when the latter provides greater financial support.

In addition, the Freedom Restoration Act (RFRA) which was passed in 1993 provides a strict scrutiny test, known as the *sherbert test*, to ensure the government does not substantially burden a person's exercise of religion, even if the state has public interest in doing so. Initially, the language of the act suggests the state cannot infringe on the

practice of religion. The policy suggested does not tax or fine a religion; it simply offers a reward for donation. An individual is free to practice their religion, with no additional penalty or burden since the driver's license fee was already in place.

The RFRA also provides exceptions for the state to invoke a policy even if it was to infringe on an individual's religion. A policy must improve a government's interest, ideally an interest which relates to a constitutional concern. Since the constitution states the government has the authority to promote the general welfare, efforts to increase organ donation falls within constitutional limits. If public concern is prevalent surrounding the religious freedom objection, clauses can be written into the program to excuse members of a certain faith. For instance, a clause might exclude all Jehovah Witnesses from having to pay the \$30, regardless if they agree to donate.

VIII. Conclusions and Policy Implications

This research began with the goal to empirically test if the wavier of a \$30 driver license fee could significantly increase the quantity of cadaver organ donors. Utilizing a sample Z-statistic, it was discovered that the incentive structure could increase the quantity of cadaver organ donors. In addition, this paper utilized binary logistic regressions to test if certain demographics might influence individuals' willingness to accept the monetary incentive. Uncovering that race, gender, age, religion, and income did not impact an individual's willingness to accept the \$30 incentive has strong policy ramifications. First, finding an insignificant income variable suggest policy makers need not worry about the exploitation of the poor. Second, since religiosity was also found to be insignificant, the suggested policy would not need to be tailored for specific religions.

Third, utilizing this research 's finding with Thaler's (2008), the significant student variable suggests that policy makers should direct their attention towards student

populations and utilize the \$30 incentive to encourage registering to be a cadaver organ donor. Once enrolled, the students are unlikely to “opt-out” indicating the incentive need only be used once per individual.

Future research should expand on this data with a sample that has more variety. While the dataset is similar to the general populous of central Illinois this populous is not an accurate representation of all citizens within the United States. It may be that different states' residents behave differently to the monetary incentive. In addition, this paper suggests exploring additional incentive based structures beyond the \$30 incentive to increase cadaver organ donation. For instance, changing the fee structure by groupings to see if the elasticity of organ donor's changes by fee would allow for an investigation into what is the optimal fee waiver needed to induce different groups into registering to be cadaver organ donors.

This paper recognizes the on-going debate, concern, and reality of organ donation. This \$30 incentive is just one tool of many that should be investigated and possibly used to increase the quantity of cadaver organ donors. Another day of the status quo is another 21 deaths due to the current shortage. This paper challenges the status quo and welcomes others too in order to close the shortage gap of organs.

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Appendix

Survey for Honors Research (Phone Survey Used in Spring)

Good Evening is _____available? Hi my name is _____and I am a student at Illinois Wesleyan University (IWU). IWU is conducting research in regards to individuals' attitudes towards organ donation and we would appreciate your input.

The purpose of this study is to examine if monetary incentives could be utilized to increase the supply of cadaver organs.

The length of time you will be involved with this study is approximately 5 minutes, and you will be asked to complete a phone survey.

The records of this study will be kept private and your participation is voluntary. You have the right to refuse to participate or to withdraw at any time without penalty.

Step 1

1. Do you wish to participate in the survey
 - 1.1. Yes (Continue on to **Step 2**)
 - 1.2. No (If they answer "No" the survey is over and say *Thank you for your time*)

Step 2-Demographics

Thank you for agreeing to participate in the survey. I will now ask some demographic questions.

1. What year were you born? Enter year (Ex. 1989) _____
2. What race would you say you a member of? (**Make sure you list the choices**)
 - 2.1. African American/African/Black/Caribbean
 - 2.2. Asian/Pacific Islander
 - 2.3. Caucasian (Non Hispanic)
 - 2.4. Hispanic/Latino
 - 2.5. Native American
 - 2.6. Prefer not to answer
3. Are you Married?
 - 3.1. Yes
 - 3.2. No
 - 3.3. Prefer Not to Answer
4. Are you male, female, or prefer not to answer? (If you can tell by their voice, no reason to ask this question)
 - 4.1. Male
 - 4.2. Female
 - 4.3. Prefer not to answer/ Do not know
5. Including yourself, how many people live in your household?
 - 5.1. Write down the number_____
6. If any, which organized religion are you a member of?

- 6.1. Protestant/Other Christian
- 6.2. Catholic
- 6.3. Mormon
- 6.4. Jewish
- 6.5. Islam
- 6.6. Other non-Christian religion
- 6.7. Prefer not to answer
- 6.8. Not Applicable

Step 3-Questions Regarding Organ Donation

Thank you for completing the first part of the survey, now I would like to get your opinion regarding organ donation.

- 1. Do you know of a friend or relative who is on kidney dialysis?
 - 1.1. Yes
 - 1.2. No
 - 1.3. Prefer Not to Answer
- 2. Do you know of a friend or relative who has ever been an organ donor?
 - 2.1. Yes
 - 2.2. No
 - 2.3. Prefer Not to Answer
- 3. Do you know of a friend or relative who has ever been a recipient of donor organs?
 - 3.1. Yes
 - 3.2. No
 - 3.3. Prefer Not to Answer

Step 4- You are almost done and this is the final section of the survey. As you may know, there is an enormous need for organ donors throughout the United States. In 2012, more than **6,500** people died waiting for an organ transplant, and over a thousand more suffer on waiting lists. Increasing cadaver organ donation is one way to limit this shortage. Now I would like to ask you some questions in regards to cadaver organ donation.

- 1. Do you have an Illinois driver's license?
 - 1.1 Yes
 - 1.2 No
 - 1.3 Prefer Not to Answer/Do not Know
- 2. Are you already an organ donor? (If they answer "no" or "prefer not to answer" got to # 3. If they answer "yes" go to question #4.)
 - 2.1 Yes
 - 2.2 No
 - 2.3 Prefer Not to Answer

3. In Illinois, persons 21-60 have to pay a \$30 fee when they get or renew their driver's license. With this in mind, if the Illinois Department of Motor Vehicles was to waive your fee the next time you went to renew or get your licence, only if you agreed to be a cadaver organ donor, would you then become one to cancel the \$30 fee?

- 3.4. Yes
 - 3.5. No
 - 3.6. Prefer Not to Answer
4. Seeing how you are already an organ donor would still agree to be an organ donor even if the Illinois DMV offered non-organ donors payment of \$30 in order to entice them into donation?
- 4.1. Yes
 - 4.2. No
 - 4.3. Do not know
 - 4.4. Prefer not to answer
5. Last question, what would you say is your household's annual income?
- 5.1. Below 10,000
 - 5.2. 10,000 to 40,000
 - 5.3. 40,000 to 80,000
 - 5.4. 80,000 to 120,000
 - 5.5. Above 120,000
 - 5.6. Prefer not to answer

Thank you for completing the survey. We appreciate your input and time. If you have questions, you may contact the researcher(s) via email at dtruesda@iwu.edu. If you have questions or concerns regarding this study and would like to speak with someone other than the researcher(s), you may contact Dr. Leah Nillas, Institutional Review Board Chair, Illinois Wesleyan University, at 309-556-3437, lnillas@iwu.edu.

Survey for Honors Research (Online Survey Used in Fall)

Monetary Market for Organ Donation

You are invited to be a participant in a research study about monetary markets for organs. You were selected as a possible participant because you are enrolled at Illinois Wesleyan University (IWU). We ask that you read this document and ask any questions you may have before agreeing to be in the study. The study is being conducted by Mr. Daniel Truesdale a student at IWU and Professor Craig Broadbent of Illinois Wesleyan University.

The purpose of this study is to examine if monetary incentives could be utilized to increase the supply of cadaver organs.

The length of time you will be involved with this study is approximately 30 minutes, you will be asked to complete a survey.

If you agree to participate, we will ask you to complete a list of questions from an online survey.

The records of this study will be kept private. The data will be anonymous and only Professor Broadbent and Mr. Truesdale will have access to the data. Any sort of report that is published or presentation that is given, will not include any individual specific information.

Your participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with Illinois Wesleyan University or any of its representatives. You have the right to refuse to participate or to withdraw at any time without penalty or loss of benefits

At this time, you may ask any questions you have about this study or about the informed consent process. If you have questions later, you may contact the researcher(s) at (309) 556-3711, dtruesda@iwu.edu. If you have questions or concerns regarding this study and would like to speak with someone other than the researcher(s), you may contact Dr. Brian Brennan, Institutional Review Board Chair, Illinois Wesleyan University, at 309-556-3972, bbrenna1@iwu.edu.

If you would like a copy of this form for your records please contact dtruesda@iwu.edu and a form will be emailed to you.

I have read and understood the above explanations, and my questions have been addressed. The information that I provide will be used for research purposes only. I understand that my participation is voluntary and that I may withdraw anytime without penalty. If I have any concerns about my experience in this study (e.g., that I was treated unfairly or felt unnecessarily threatened), I may contact the researchers or the Chair of the IWU Institutional Review Board regarding my concerns. I voluntarily consent to participate in this research study. (By clicking "Yes" and advancing to next page, you agree to the study).

Do you wish to participate in the online survey?

- ☐ Yes
- ☐ No

Information on Organ Donation

There is an enormous need for organ donors throughout the United States. In 2012, more than 6,500 people died waiting for an organ transplant. How Cadaver Organ Donation Works: All lifesaving efforts are made to save a person's life without regard to their status as an organ/tissue donor. It is only after these efforts have failed and someone is declared dead that recovery efforts begin. The staff at the hospital, for which the individual is deceased, is not involved with the recovery process and does not have access to the Secretary of State Organ/Tissue Donor Registry. When death occurs or is imminent, the hospital staff contacts the organ procurement organization (OPO) to report the death. The OPO sends clinical staff to the hospital if it is likely that donation is possible. The OPO contacts the Secretary of State's donor registry hotline to find out if the person is listed in the registry. If the person is in the

registry, the trained OPO staff will work with the family, explaining the process, gathering information and provide support. If he/she is not in the registry, family will be educated about the process and asked for consent to donate. Each potential donor is evaluated to see what organs/tissue can be recovered for transplantation. The number of organs/tissue recovered varies from person to person. The United Network for Organ Sharing (UNOS) manages the list of patients waiting for transplants. A computer program matches donor organs with recipients based on certain matching criteria such as blood and tissue type, height and weight, as well as how sick the patient is, how long they have been waiting and distance from donor to patient. About 75 percent of all organs go to local patients. Recovery is a surgical procedure where the donor is treated with dignity and respect, and the body restored to allow for an open-casket visitation. All funeral and burial or cremation options may take place after donation. In order to register as an organ donor in Illinois, you must be at least 18 years old. **If you are younger than 18 years old, your parents, next of kin, or legal guardians have the responsibility of making the decision about organ donation. When an individual registers, the organ donor registry will carry out their wish to donate your organs and tissues upon your death. The individual's family will NOT have to pay any amount for the removal of your organs. Although everyone is eligible for organ donation (regardless of age, race, or medical history), medical professionals make determinations whether the organs are suitable for transplant once an organ donor has deceased. Below is a list of the top Myths regarding organ donation: Doctors don't work with the same urgency to save an individual's life if they know their an organ donor: Many people are concerned that if they sign up to be an organ donor, they won't get the same level of care should they end up in a life or death situation. However, this is not true. Your doctor is obligated to have one singular aim: to save your life. If you are a registered donor, a doctor might declare you dead before it's appropriate: This is a common myth that scares many people out of registering to donate. However, the opposite is actually true. Organ donors are given more tests to determine official death than those patients who haven't agreed to organ donation. Doctors will take all of your organs, even if you only want to donate one: You can specify which organs you are willing to donate. Only the organ(s) you identify will be donated. Organs are sold on the black market: There are many urban legends involving frightening tales of organs being stolen and sold for profit. The process of donation is so complex and medically involved that this is not viable in the U.S. A transplant necessitates all of the following: Highly trained doctors. Modern healthcare facilities. Matching of donors to recipients. Other medical support. We would like to ask a few questions about you before we proceed to questions about organ donation.

All_ Questions

Year you were born

Race

- ☐ African American/African/Black/Caribbean
- ☐ Asian/Pacific Islander
- ☐ Caucasian (Non Hispanic)
- ☐ Hispanic/Latino
- ☐ Native American

- ☐ ☐ Prefer not to answer

Are you married?

- ☐ ☐ Yes
- ☐ ☐ No
- ☐ ☐ Prefer not to answer

Gender

- ☐ ☐ Male
- ☐ ☐ Female
- ☐ ☐ Prefer not to answer

How many people, besides yourself, live in your household?

- ☐ ☐ 0
- ☐ ☐ 1
- ☐ ☐ 2
- ☐ ☐ 3
- ☐ ☐ 4
- ☐ ☐ 5
- ☐ ☐ More than 5

What is your personal aggregate annual income?

*Include income from all external factors: (Parents, Guardians, Scholarships, Part-Time Job, etc.)

- ☐ ☐ Less than \$10,000
- ☐ ☐ \$10,000-\$29,999
- ☐ ☐ \$30,000-\$49,999
- ☐ ☐ \$50,000-\$99,999
- ☐ ☐ \$100,000-\$249,000
- ☐ ☐ \$250,000 or more

Are you a member of an organized religion?

- ☐ ☐ Yes
- ☐ ☐ No
- ☐ ☐ Prefer not to answer

If yes, which organized religion are you a member of?

- ☐ ☐ Protestant/Other Christian
- ☐ ☐ Catholic

- ☐ ☒ Mormon
- ☐ ☒ Jewish
- ☐ ☒ Muslim
- ☐ ☒ Other non-Christian religion
- ☐ ☒ Prefer not to answer
- ☐ ☒ Not Applicable

Organ Donation Questions

Do you know of a friend or relative who is on dialysis?

- ☐ ☒ Yes
- ☐ ☒ No
- ☐ ☒ Prefer not to answer

Do you know of a friend or relative who has ever been a organ donor?

- ☐ ☒ Yes
- ☐ ☒ No
- ☐ ☒ Prefer not to answer

Do you know of a friend or relative who has ever been a recipient of donor organs?

- ☐ ☒ Yes
- ☐ ☒ No
- ☐ ☒ Prefer not to answer

Would you be offended by the purchase and sale of cadaver organs, even if such transaction saved lives?

- ☐ ☒ Yes
- ☐ ☒ No
- ☐ ☒ Do not know

Would you be offended by a government program which would allow your organs to be removed at death without your explicit permission?

- ☐ ☒ Yes
- ☐ ☒ No
- ☐ ☒ Do not know

If yes, would you still be offended by a governmental policy which would allow your organs to be removed at death without your explicit permission, even if you could prevent such removal by prefiling, prior to your death, a statement denying such permission?

- ☐ ☒ Yes

- ☐ ☒ No
- ☐ ☒ Do not know

Which organs would you be willing to donate after you are deceased?

***Select "All" if you would donate all your organs**

- ☐ ☐ Heart
- ☐ ☐ Lungs
- ☐ ☐ Liver
- ☐ ☐ Pancreas
- ☐ ☐ Kidneys
- ☐ ☐ Small Intestines
- ☐ ☐ All

Which organs would you not be willing to donate after you are deceased?

***Select "All" if you would not donate any of your organs**

- ☐ ☐ Heart
- ☐ ☐ Lungs
- ☐ ☐ Liver
- ☐ ☐ Pancreas
- ☐ ☐ Kidneys
- ☐ ☐ Small Intestines
- ☐ ☐ All

Do you have a Illinois driver's license?

- ☐ ☒ Yes
- ☐ ☒ No
- ☐ ☒ Prefer not to answer

If yes to the last question, then the respondents followed this track.

Monetary Market for Organ Donation

Illinois Questions

If yes, do you know you can become a cadaveric organ donor through your driver's license by joining the First-Person Consent Organ/Tissue Donor Registry by submitting a form online, by calling 1-800-210-2106 or by visiting your nearest Secretary of State facility.

- ☐ ☒ Yes
- ☐ ☒ No

Are you already a cadaveric organ donor?

***You can consult you Illinois Driver's License to verify if you are a cadaveric organ donor**

- ☐ ☒ Yes
- ☐ ☒ No
- ☐ ☒ Do not know

If answered no or do not know, respondents were asked the following

Illinois Driver Incentive

In Illinois, persons 21-60 have to pay a \$30 fee when they get their driver's license. With this in mind, if the Illinois Department of Motor Vehicles was to waive your fee, only if you became an organ donor, would you then become an organ donor to cancel the \$30 fee?

- ☐ ☒ Yes
- ☐ ☒ No
- ☐ ☒ Do not know

If answered yes, respondents were asked the following

Illinois Driver Incentive-For Donors

In Illinois, persons 21-60 have to pay a \$30 fee when they get their driver's license. With this in mind, if the Illinois Department of Motor Vehicles was to waive your fee, only if you became an organ donor, would you have been more enticed to become an organ donor in order to cancel the \$30 fee?

- ☐ ☒ Yes
- ☐ ☒ No
- ☐ ☒ Do not know