



Donor Willingness to Accept Selling a Kidney for Transplantation: Evidence from Iran

THE Iranian model of kidney donation, established in 1988, is a state funded system of living renal transplants where the government pays for all transplant related expenses. The IKF (Iranian Kidney Foundation) is in charge to match recipients and compensated donors. On the supply side, each donor registers at the local IKF after preliminary medical tests. On the demand side, any patient with end stage renal disease could enter the kidney waiting list according to his/her blood type. A renal patient is matched to a donor, basically with the same blood type, based on first come, first served.

Both sides could also find each other outside the IKF, for example on an online kidney matching website. However, since the transplant is exclusively possible through an official letter from the IKF, they have to register there. There is no official data available on self-arranged kidney transplants in Iran. Nonetheless, one could easily confirm from the extent of advertisements to vend a kidney that self-arranged matching consists of a significant portion of donor-recipient pairs. Moreover, based on the last official data from the IRODaT (International Registry on Organ Donation and Transplantation), about 43% of transplants in 2015 and 2016, and 41% in 2017 were provided from living, mostly unrelated donors while the rest were delivered from deceased donors.¹

The kidney market in Iran has provided an excellent opportunity for analysis of the market for an organ. One of the underlying fundamental concepts in any market is the WTP (willingness to pay) and the WTA (willingness to accept). The WTA is the minimum monetary amount that an individual requires to sell a good, while the WTP is the maximum amount one is willing to sacrifice to procure a good. In this paper, we will examine the factors that shape the WTA of kidney donors.

DATA

The Iranian kidney donation website, called Koliee, which means kidney in Persian, started its work in August 2016.² Today, with over 25,000 users, it is the most massive matching point for kidney

transplants in Iran and in all the world. Users can log in as a buyer or a seller on the website, state their specific fixed WTP or WTA and search for information on buyers and sellers by province, blood type or price once they have paid the registration fee of about 300,000 IRR (Iranian rials), which is about \$7.15. Moreover, they could give more information such as their health status, how urgent their case is or why they intend to sell the kidney.

For the first time, we have obtained data on registered users from August 2016 up to April 2018, including 1,498 users with 534 observations of sellers with a revealed WTA. We constructed dummy variables for years in the Persian calendar, including D1 for 1396 (almost 2017) and D2 for 1397 (almost 2018), which were equal to 1 for data only from those years and 0 otherwise. Moreover, we built up another dummy variable, called Urgent, from the detailed information that each seller had provided. Whenever they explicitly stated that they were in urgent need of money or could come to any city for the transplant, we considered 1 for Urgent and 0 otherwise. On average, about 28% of donors in our sample had an urgent financial need.

Most of the available studies, eg that by Øien et al in 2005,³ suggest that the majority of donors are female, while the majority of recipients are male. However, the situation is reversed in Iran, where women are less likely to donate and more likely to receive a kidney. Also, in our data set the donors were 87% male with an average age of about 31 years (range 18 to 51).

The average WTA was 522.45 million IRR (almost \$12,440), ranging from 10 million IRR (almost \$240) up to 3,200 million IRR (almost \$76,200). We did not have that much data on recipients. Nevertheless, their average WTP was about 267.14 million IRR (almost \$6,360), which was almost half of the WTA.

RESULTS AND DISCUSSION

We used multiple linear regressions to associate explanatory variables with the WTA of donors. As the table shows, coefficients were robust for

Ordinary least squares regression of willingness to accept

	Model 1 ± Robust SE	Model 2 ± Robust SE	Model 3 ± Robust SE
No. pts	472	472	455
Constant*	734.09 ± 55.73	805.09 ± 60.22	760.70 ± 96.64
Gender	-160.41 ± 54.78*	-152.54 ± 54.43*	-110.58 ± 51.85†
Urgent	-103.34*** ± 39.30*	-95.41 ± 39.09†	-81.70 ± 36.83†
Tehran	-84.13 ± 36.09†	-94.26 ± 35.96*	-75.56 ± 34.02†
Yr:			
D1	—	-104.73 ± 38.44*	-127.71 ± 36.24*
D2	—	-158.33 ± 72.80†	-156.25 ± 68.71†
Age	—	—	-0.00 (2.58)
R ²	0.04	0.06	0.06
Adjusted R ²	0.03	0.05	0.05
Probability (F statistic)	0.00	0.00	0.00

* Significant at 1%.

† Significant at 5%.

different model specifications. Men had an average of 110.58 million IRR (almost \$2,630) less WTA compared to women. As females have more sense of ownership over their belongings and ascribe more value to them, it was expected that they would ask for more compensation for losing them.⁴

Moreover, donors in urgent need of money were willing to receive about 81.70 million IRR (almost \$1,945) less to overcome their immediate financial problems. Remarkably, donors living in Tehran had about 75.56 million IRR (about \$1,800) less WTA. This difference between Tehran and other cities might be because it is the most populated city in the country with the most extensive kidney market, which reduces the market power of donors and does not give them the chance to hold out for a high kidney price.

The dummy variables of both years (D1 and D2) significantly reduced the WTA. Indeed, as time goes by, the market size increases, the market power of donors decreases and, therefore, donors lessen their expectation of the amount of money that they could earn from selling their kidneys. Since all donors should be healthy, age could not by itself signal how

suitable the kidney is for transplantation. Therefore, it does not make a difference in the quality of the kidney and its valued price.

The effects of all uncaptured but influential variables are aggregated into the constant, which was highly significant in all models (see table). Moreover, all of our explanatory variables except age, which was not significant, were inevitably binary variables which could not fully explain the variation in our dependent variable. [T1]

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