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A Field Study of Donor Behavior in the Iranian Kidney Market*

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October 2021

Iran has the world's only government-regulated kidney market, in which around 1000 individuals go through live kidney-removal surgery annually. We report the results of the first field study of donor behavior in this unique and controversial market. Those who enter the market have low income, typically entering to raise funds. They have lower risk tolerance and higher patience levels than the Iranian average. There is no difference in rationality from population averages. There is evidence of altruism among participants. This might shed light on the sort of people likely to participate if other nations were to operate such markets.

Keywords: kidney donation, Iranian kidney market, risk, patience, rationality, altruism, generalized axiom of revealed preference, field experiment.

JEL classification: I11, I12, I18, C93, D03.

1 Introduction

In recent years economists have played an important role in developing matching models to reduce waiting times for kidney donation, with the work of Alvin Roth perhaps most prominent (Ashlagi and Roth, 2014; Fumo et al., 2015; Anderson et al., 2015; Roth, 2015). This has undoubtedly helped improve the situation for those waiting for donors (Krudy, 2012). However, we are still very far from solving the problem of long waiting lists and tragically many patients die each year before a suitable donor is found. In the USA, there were 90,421 people on the waiting list for a kidney as of July 2021 (OPTN, 2021) with around 50.2% waiting more than 2 years in the list, while according to the National Kidney Foundation the mean waiting time is 3.6 years. In 2014, 4,761 patients (13 a day) died waiting for a transplant while another 3,668 became too sick to receive a transplant before they were offered one. In the UK the situation is similar with the National Health Service reporting a waiting list of 6,000 people in 2021, and 350 deaths while waiting for a transplant in 2020. The cost in human lives and in suffering is hard to overstate and there is no question that this remains an important and topical issue in many nations. In contrast Iran, the world's only country to have a legal and government-regulated kidney *market*, has almost no waiting list and virtually no deaths caused by a lack of an available kidney (Yanklowitz, October 27, 2015). In Iran around 40% of kidney transplants are performed from live donors with the remainder taken posthumously (IRNA, 2018; Kidney Foundation of Iran, 2018).[1]

There is no doubt that the notion of paying for a kidney raises ethical concerns and some see this form of market transaction as incompatible with the "sacred value" of human life (Elias et al., 2015). However, given the apparent success of the Iranian kidney market and the existence of long waiting lists, patient suffering and significant loss of life elsewhere, there has also been something of a re-evaluation of the potential for regulated organ markets in the developed world, with a recent paper suggesting that 71% of the public would support a shift towards introducing payment for organ donations (Elias et al., 2015). Within medicine there have been debates going back some years on whether payment should be actively considered (Erin and Harris, 2003). There has also been media coverage in which prominent economists have put forward the case for a kidney market (Becker and Elias, 2014; Zurga, 2016). In the wider context there has also been related research on the role of monetary incentives in other health-related areas such as blood donations (Lacetera et al., 2013) and vaccinations (Weaver et al., 2014; Yamin and Gavious, 2013).

Given the nature of the debate it seems important to consider the characteristics of those likely to come forward as donors if a market is established and to ask what special features they

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[1] Note that following convention even if payment is involved, anyone who willingly relinquishes a kidney for transplantation is referred to as a "donor" throughout the medical and social science literature as well as in practice and we will continue that convention in this paper.

may possess. Since there is only one existent regulated market, this must involve a controlled examination of participants in the Iranian kidney market. Our paper reports the outcome of an unprecedented first study of patient behavior in the Iranian kidney market in which we obtained direct access to donors before and after surgery. We provided full incentives where appropriate during our experimental treatments, providing incentive payments of around $50 (in terms of purchasing power parity) on top of a show-up fee of roughly $15.[2] We also collected data that is similar to existing generic data on the Iranian population. This allows us to not only provide comparisons within our sample but also between our sample and Iranian averages where data is available.

To provide some background, the adoption of a regulated market mechanism for kidney procurement in Iran started in 1988 in the absence of sufficient posthumous donations (Ghods and Savaj, 2006). The mechanism allows living unrelated Iranian individuals to donate kidneys to Iranian patients with end stage renal disease (ESRD) for financial gains. The program was successful in eliminating the renal transplant waiting list within a decade of its implementation. In addition, the Organ Transplant Act legalized brain-stem death donations in 2000. The share of living unrelated donations (LURD) declined from 86% in 2000 to 69% (or 1577 kidney transplants) in 2010 (Mahdavi-Mazdeh, 2012). The Association for Supporting Renal Patients, a non-profit organization (NGO), facilitates the market exchange. Both ESRD patients and potential kidney donors are referred and registered with the NGO. A primary medical evaluation is subsequently conducted by the NGO. Upon successful completion of the test, a formal consent is acquired and the potential donor and the recipient are introduced to each other. At this stage both the patient and the donor are referred to a nephrologist for further evaluation, cross-match, and angiography. If the patient-donor pair is compatible, in the next step the pair negotiate the terms and conditions of the exchange. All terms within the price-cap, set by the NGO, are guaranteed and enforceable by the NGO. The price-cap is frequently adjusted for inflation and during the course of our study was set at 180 million Iranian Rial (US$4,700 in August 2017). However, the negotiation is private and the pair can agree any terms they wish. The donor also receives a "gift of altruism" and 1 year of insurance from the government through the Charity Foundation for Special Diseases. Transplant surgery is carried out free of charge in public university hospitals. The Iranian Ministry of Health and Medical Education introduced further procedural changes in July 2019. In particular, they established a center for organ transplant and procurement at the ministry which acts as the matching centre and provides oversight and overall control of the process.

The Association for Supporting Renal Patients provided us with contact details of potential donors and permission to approach them, and also provided a venue for our experimental sessions at their main building. While our methods are described in full in the Materials and Meth-

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[2]Full details are provided in Section 2 below.

ods section, we can summarize the core features here. Subjects were invited to attend a session on a day of their choosing and data was collected on an Android tablet using a purpose-built app designed to implement our experiment. Each of our 215 participants attended an uninterrupted session which took approximately 2 hours. The study started in August 2017 (shortly after the end of sanctions between the UK and Iran) and live sessions continued until May 2019, with further telephone interviews and follow-up sessions continuing until February 2021. 78 subjects were first interviewed post-donation while the remaining 137 were interviewed pre-donation. Of the pre-donation group 91 were contacted a second time to confirm their final status in February 2021. 35 had donated by this point with the remaining 56 dropping out of the market (30 for medical reasons and 26 through choice). Following this process we were able to measure behavioral variables such as risk aversion, time preference (patience), altruism, rationality (consistency with GARP, the generalized axiom of revealed preference), and a wide variety of demographic and socioeconomic data. Where feasible we incentivized answers and used the most prominent measures available. We also examined why these patients enter the market and what alternatives might have been available to them. We are able to compare our patient data with available data for typical Iranians to provide a benchmark (Falk et al., 2018) and we would like to thank Falk et al for providing us with early access to the raw data for Iran used in their work which made these comparisons possible.

We present the result of a series of mean comparisons between the Iranian population and participants in the kidney market, and between participants at different stages of the process. We also undertake an analysis of market participation and a longitudinal (and pseudo-longitudinal) study to tease out the role of different behavioral characteristics in the decision to participate in the market and to proceed with transplant surgery. Our results, presented in full below, paint a surprisingly consistent picture. While the typical donor is in considerable financial difficulty, they are significantly more patient and exhibit lower tolerance for risk than an average Iranian (though *conditional on entering the market* those with lower patience are more likely to have donated during our study). Those who go through with the process exhibit higher levels of altruism than those who drop out. We find no difference in rationality between participants in the market and the subjects in a leading study of rationality from which we take our core measure (Choi et al., 2014). We would argue that alternative options for those in financial difficulty such as approaching a loan shark might be more appealing to the risk-loving (and perhaps more impatient) since this offers an immediate solution but replaces it with a serious and risky long-term liability, while the organ market is a difficult short-term prospect but does not result in higher levels of debt in the long run. Our findings on altruism are consistent with the idea that, while donors are being paid, they are nevertheless taking part in a difficult process that has the potential of saving a life, and this may also be important when considering alternatives.

2　Methods

Our main method was the use of an experimental design combined with a series of survey questions all undertaken in the field. Our design was registered in August 2017 at the start point of the field study (Moghaddasi-Kelishomi and Sgroi, 2017) which ran until May 2019, with further telephone interviews and follow-up sessions continuing until February 2021. Early access to patients in the Iranian kidney market provided by the non-profit organization (NGO) "Association for Supporting Renal Patients" was a crucial part of our design: in many cases we were able to interview patients long before they were due to go through the donation procedure and follow this up at a later date whether surgery had taken place or not, allowing us to draw a distinction between those who opted to continue with surgery, those who did not by choice, and those who dropped out for medical reasons. We also conducted interviews with patients who had already donated and were fortunate to have raw data for typical Iranians provided by Falk et al. (2018). This provides us with a number of dichotomies across a wide range of experimentally generated data (such as attitudes towards risk, patience levels, rationality as measured by consistency with the generalized axiom of revealed preference, etc.) as well as more traditional survey questions and demographic data. In the remainder of this section we will first go through the design in more detail before moving on to a summary of more practical aspects of the study. The full experimental script is provided in the Appendix.

Experimental Design. All of our 215 participants took part in an experimental procedure located in the Iranian capital Tehran, including a set of 11 tasks which are detailed in full in the Appendix and will be described below.[3]

The first task is a questionnaire containing a series of basic demographic questions (gender, age, siblings, religious beliefs, marital status, children, gender, self-reported happiness and education level) and questions relating to their history of donations (including blood donation and intention to provide posthumous organ donations). The second task switches attention to economic data including employment status, income, job details, property ownership, car ownership, family economic status, and information relating to the organ sale including price paid, advice received from others concerning the process, and questions relating to their willingness to go ahead for a lower price, and their willingness to sign an organ donation form (for posthumous donation) at the end of the session. *This final question is followed up with the provision and signing of the official form for those who indicate that they are willing and therefore provides a relatively robust test of true intentions.* This is something that we will focus on in some detail in the results section. Task 3 is a further questionnaire this time focusing on expectations

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[3]To give an idea of scale, in 2017 there were 931 kidney transplants from live donors in the whole of Iran (Kidney Foundation of Iran, 2018). There are 30 kidney transplants units in Iran with 12 units located in Tehran and the rest in other Iranian cities (IRNA, 2018). Our sample is therefore a non-trivial proportion of all live donors in Tehran and indeed even within Iran.

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about well-being, health and employment prospects after the operation and possible alternatives to the operation (such as bank loans, borrowing from family and selling assets if available).

The next part of the experimental design shifts away from demographics and survey questions towards a series of incentivized tasks designed to reveal behavioral characteristics. Task 4 is a simple check on basic understanding and numeracy before the main tasks and includes simple questions such as: "what is 50% of 200,000 rials?" Task 5 is timed intelligence test which presents a simple example followed by a set of 15 Raven's graphical matrix questions which is a commonly used "IQ" test (the full set is presented in the Supplementary Materials). Participants were give 8 minutes in total (a countdown timer was clearly visible). Task 6 is our measure of rationality following directly from Choi et al. (2014) and measures consistency of individual choices with the Generalized Axiom of Revealed Preference (GARP). The participants are presented with a sequence of decision problems under risk, with each presented as a choice from a two-dimensional budget line. Exactly as in Choi et al. (2014) each choice of the allocation from the budget line represented an allocation of points between accounts A and B (corresponding to the horizontal and vertical axes) and the incentivized payoffs of a particular choice were determined by the allocation to the A and B accounts; the subject received the points allocated to one of the accounts A or B, determined at random.

Task 7 provides our core incentivized measure of attitudes towards risk and is taken from the risk "staircase" developed in Falk et al. (2018). Participants are asked an initial question in which they have to state their preference between a sure payment and a gamble. Depending upon their answer they move forward to a new question and this is repeated until a total of five questions have been answered. Task 8 switches back to a set of miscellaneous non-incentivized questions, mainly about the participant's experiences in the organ market including whether they would recommend the market to friends and family, whether they feel the current system performs well, the money they have received and what they used the money for as well as some hypothetical questions about time preference and about depression. Task 9 mirrors task 7 but this time following the "staircase" approach to measuring time preference and this provides our core *incentivized* measure of patience. Task 10 presents the 10-question version of the Big Five Personality Inventory (Rammstedt and John, 2007). Task 11 concludes the experiment with the 15-question version of the Barratt Impulsiveness Scale (Spinella, 2007).

For those subjects who took part in two sessions, the only changes made were to adjust the questions to refer to post-donation rather than pre-donation where relevant. The show-up fee and Incentive payments remained the same.

Logistics. The average number of participants per session was 5.6 and refreshments were provided during the session. We examined a total of 215 participants throughout the study. 78 were first interviewed post-donation while the remaining 137 were interviewed pre-donation. Of the

pre-donation group 91 were contacted a second time to confirm their final status in February 2021. 35 had donated by this point with the remaining 56 dropping out of the market (30 for medical reasons and 26 through choice).

Pre-donation participants were interviewed for the first time prior to transplant surgery. We collected a list of those who registered with the NGO to donate their kidney once every week or every two weeks over the months over which we conducted the interviews.[4] Upon receiving the list, we contacted everyone on the list to invite them for an interview. Not all participants were able to attend the interviews because of the long travel time from other cities to Tehran where the interviews were held, difficulties taking time off work for the interviews and so on, though we adjusted our show-up fee to control for travel costs in order to mitigate this to the best of our ability.

In follow-up phone interviews, we distinguished between participants who declared "they are still waiting for the donation" and those who declared that they had changed their mind. We do not include the earlier group in any of the comparisons presented in the paper since their status is essentially unchanged from first contact. The average waiting time between the first interview and the transplant surgery in our sample is about 54 days. The latest follow-up update in February 2021 is 639 days after the first interview of the last person in our sample. Of the 137 individual potential donors, the final status of 46 participants is unknown after the second interview: these are individuals who could not be reached by telephone. Table 1 shows little meaningful difference between respondents and non-respondents in the second interview suggesting that there is little evidence of bias in attrition.

Summary statistics are provided in Table 2. Demographic and socioeconomic information is summarized in Table 3 and we can see that the pre-donation and post-donation pools are in general similar, though our results section examines the differences at length. Finally, we provide descriptive statistics for the key behavioral characteristics in Table 4. A summary of the values from our full set of participants is provided in the top section drawn from their first experimental session, while the lower section provides averages from the Iranian population (who were not incentivized and who took part in a telephone interview session) drawn from Falk et al. (2018).

Payments were split between a show-up fee and incentive payments. The show-up fee was set at 200,000 Rials which is the equivalent to $5.23 (converted via the market exchange rate) or $15.32 (in terms of purchasing power parity).[5] Incentive payments varied but typically were

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[4]There were exogenous logistic interruptions (such as a change in the administration of the NGO or health team) that forced us to suspend our study twice for two months over the period of the study. These exogenous events were outside of our control and were not correlated with any of the behavioral characteristics within our pool.

[5]Conversions were calculated using the market exchange rate of 38,210 IRR = 1 USD from www.tgju.org for the market rate. For purchasing power parity, the conversion was calculated using the purchasing power parity conversion factor, GDP (LCU per international $) for 2017, 13,061.3 = 1 USD from the World Banks' world development indicator.

made in the range of 600,000–700,000 Rials or equivalently \$15.69–\$18.31 (market exchange rate) or \$45.96–\$53.62 (purchasing power parity). We adjusted the show up fee and incentive payments annually to account for inflation during the study using the official inflation rate from the Statistical Centre of Iran.

3   Results

In this section we first discuss broad features of the data focusing on three behavioral parameters: rationality, time-preference and attitudes towards risk. We then move on to a Probit analysis of participation in the market in which we highlight the importance of risk, patience, performance in the Raven's matrix (IQ) test and other variables which includes a pseudo longitudinal panel.

In what follows we mainly make use of data from our own pool of organ market patients but occasionally we compare this data with data from Falk et al. (2018) for average Iranians which was collected as part of the Gallup world poll in 2012. Their data set is a representative sample of Iranian adults and since we opted to measure attitudes towards risk and time preferences in exactly the same way as in Falk et al. (2018), this provides a useful benchmark for our own data. However it should be noted that Gallup employed telephone interviews (both landline and cellular) to collect their data which was not incentivized. Together with risk and time-preference we also have access to gender and age. Given the small size of our pool of organ market participants as compared with the general population, we assume that the Falk et al. (2018) sample does not include any kidney market participants. Comparisons between our sample and the general Iranian population allow us to get a feel for how similar or different a typical Iranian donor might be to typical citizen which might be of particular interest when considering take-up for any country moving towards a regulated kidney market.

Mean Comparisons. Our core measure of rationality follows directly from Choi et al. (2014) who develop a method for testing consistency of individual choices with the Generalized Axiom of Revealed Preference (GARP). The process is incentivized and described in the Materials and Methods section (and shown in full in the Supplementary Material). Following this procedure, each subject's performance is summarised in a CCEI score. This score provides a direct measure of the extent to which a budget line needs to be raised to remove violations of GARP: to that extent the $1 - CCEI$ gives the percentage increase that is required. The CCEI scores for our subjects averaged 0.85 over all participants in session 1. This translates to a need to reduce the budget line by 15 percent, on average, to eliminate a subject's GARP violations. This is similar to the average of 0.881 in Choi et al. (2014). Panel (a) in figure 1 illustrates the mean rationality scores and 95 percent confidence intervals over different socioeconomic groups. The graph suggests that high-education subjects, subjects with a university degree, are more likely to have choices that are consistent with GARP than medium-education, high school education,

donors (p=0.007) and low-education, primary and secondary education, donors ($p = 0.001$).

From panel (a) of figure 1 we can also see that females display higher levels of consistency than males but not significantly so ($p = 0.356$). Young subjects, aged below the sample-average age of 32 years, display higher levels of consistency than those who are above the average age ($p = 0.281$), which is consistent with the findings in Choi et al. (2014).

Moving on to time-preference, panel (b) of figure 1 groups mean patience levels with associated 95 percent confidence intervals by socioeconomic groups. We elicit time-preference using the staircase procedure outlined in Falk et al. (2018) and in the Materials and Methods section (and the full procedure is given in the Supplementary Material) which also gives us access to data for the Iranian population, displayed in panel (c). Subjects face five interdependent hypothetical binary choices between immediate and delayed financial rewards and in each of five questions subjects chose between a payment today and a larger payment in 2 weeks. The immediate payment is fixed over the subsequent 4 questions. However, in order to narrow down the reward at which subjects are indifferent between the immediate payment and the delayed payment, the delayed payment increases or decreases following the answer to the previous question. A question is then selected randomly and the participant's choice results in an incentive payment made at the end of the session (or two weeks later as appropriate).

The patience levels shown in panels (b) and (c) of figure 1 range from 1, the least patient, to 32, the most patient. The average patience level for participants in session 1 is around 13.07 for kidney donors which is statistically very much higher than the average patience level of 3.75 in the Iranian population ($p = 0.000$). Females on average display higher patience levels than males, although not statistically significant within our kidney market sample ($p = 0.342$) as compared to the Iranian population sample in which there is mild significance ($p = 0.049$). We also see some evidence of variation by age and education: for instance higher levels of patience in medium-education subjects and those with higher age than average though these findings are not statistically significant (for age for instance $p = 0.147$).

Moving on to attitudes towards risk, panels (d) and (e) of figure 1 show the mean risk-taking levels and 95 percent confidence intervals by socioeconomic groups for kidney donors and the Iranian population respectively. Following Falk et al. (2018) we again use a staircase procedure to elicit subjects' risk preferences similar to the procedure for time-preference (and which again gives us access to Iranian population averages), which is described in detail in the Materials and Methods section (and the full procedure is given in the Supplementary Material). Each subject is faced with 5 binary questions. In each question subjects choose between a lottery of winning a fixed amount and zero with equal probability and a varying sure payment.

The risk preference measure ranges from 1, the lowest risk-taking level, to 32, the highest risk-taking level. The average risk-taking score for participants in session 1 is around 13.93

for kidney donors which is lower than the average risk taking level of 15.77 in the Iranian population ($p = 0.008$). In both samples females display more appetite for risk than males ($p = 0.2041$ in the organ market, and $p = 0.003$ in the general Iranian population). Medium-education subjects display higher levels of risk-taking than subjects with low levels of education ($p = 0.040$) or high levels of education ($p = 0.1402$).

Regression Analysis. Table 5 presents probit estimates for organ market participation. In order to generate the results in this table, we have pooled the GPS data (N1=2507) with Organ data (N2=215), giving us a total number of 2722 observations in column 1. Information on risk and patience is missing for some of the observations in column 2 (reducing the total to 2644). Our results suggest that males are more likely to donate their kidney and participation is decreasing by age. A unit increase in our measure of patience increases the likelihood of kidney donation by 0.83%, ($p = 0.000$) for males when all other covariates are kept at their mean level. A unit increase in our measure of risk-taking reduces the likelihood of donating kidney by 0.21%, ($p = 0.001$) for males when all other covariates are kept at their mean level.

Table 6 provides a comparison of behavioral characteristics before and after transplantation for a small sample of 14 patients whom we were able to interview before and after surgery and so the treatment in this table refers to participants undergoing surgery. The table compares behavior before and after undergoing kidney transplant surgery. The top panel compares longitudinal changes in IQ, rationality, attitudes towards risk and patience. The first column presents the mean change (where the post-surgery value is deducted from the pre-surgery value) in each measures. A paired t-test was used to evaluate the effect of the treatment within the longitudinal group. Results suggest that the behavioral characteristics are stable.

Given the small sample we follow the pure longitudinal results with a pseudo-longitudinal analysis of 113 patients in the lower panel of Table 6. Participants who had not donated their kidney at the time of their first session but eventually proceed with the transplantation constitute our pre-surgery group, while those who had donated their kidney before attending the first session constitute our post-surgery group. Patience is the only behavioral variable that displays a significant change ($p = 0.001$) which suggests that the results in both analyses are broadly consistent.

We note one potential difference in interpretation when comparing the longitudinal with the pseudo-longitudinal data. Within the pseudo-longitudinal analysis, the post-surgery group donated up to several years prior to the experimental session and so might be considered a more long-term comparison than the longitudinal study. Under this interpretation our results indicate stability in the short-run (longitudinal) and long-run (pseudo-longitudinal).

Table 7 presents probit estimates for the decision to go ahead with transplantation conditional on participating in the market. The total number of observations is the sum of those who par-

ticipated in the market and opted to willingly go through with donation and those who changed their mind and exited the market. The dummy variables blood donation and organ form are the binary (yes or no) answers to the questions about whether the participant has donated blood before and whether the participant is willing to sign the organ donation after death form at the end of the session, respectively. In the latter case subjects completed the form during the session.

A participant who attended the first session but has yet to go through with kidney surgery, changes status to one of the following: either they proceed with transplantation, or they fail the medical test and cannot proceed, or they change their mind and exit the market. Table 7 compares the first and the last group: in other words, it represents a choice by the participant to willingly go through with donation or exit the market. Results from model (3) show that *conditional on participating in the market*, those who have lower levels of patience are more likely to go ahead with donation (recalling from table 5 that participants *in the market* start with significantly higher levels of patience that the national average). We also note that those who are more likely to sign the posthumous organ donation form are also more likely to go ahead with donation. To give an idea of scale, male participants who are willing to sign the after death organ donation form are 34% more likely to proceed with donation. A unit increase in our measure of patience also reduces the chance of proceeding with transplantation by 1.4% when all other covariates are kept at their mean level.

4 Discussion

Our results can be summarized as the answers to several important questions. The first is whether Iranian kidney donors are irrational. Our results focus on adherence to the general axiom of revealed preference (GARP) which is a widely-accepted measure of rationality within Economics. Our subjects averaged a CCEI score of 0.85 which translates to a need to reduce the budget line by 15 percent, on average, to eliminate a subject's GARP violations. This is similar to the average of 0.881 in the paper that introduced this form of measurement (Choi et al., 2014). Moreover, our data shows that those with higher levels of education perform better which is entirely consistent with expectations. We also see no impact on the rationality measure between key groups within our sample: for instance when evaluating the treatment effect (of undertaking surgery as opposed to not doing so through choice or otherwise) rationality remains constant. Our results therefore suggest that Iranian kidney donors do not display unusual levels of irrationality and in fact seem entirely typical. This is also backed up by our finding that IQ does not play a role in our longitudinal or pseudo-longitudinal analysis, and in some of our more subjective survey questions which indicate that the decision to donate is made largely for financial reasons and after significant deliberation: the alternatives (approaching a loan shark or selling assets such as a car) may well be worse.

This brings us to the second key question: are Iranian kidney donors unusual in terms of their

risk profile? Our method is to follow the procedure outlined in Falk et al. (2018) and to perform comparisons with the raw data for Iran provided by the authors of that paper as well as within sample comparisons. In terms of risk we see highly statistically significantly lower levels of risk taking preferences in our sample than in the general Iranian population ($p = 0.008$) comparing our data to the raw data from Falk et al. (2018). This is confirmed in a regression analysis indicating that participation in the market falls as risk-taking behavior rises: a unit increase in our measure reduces participation by 0.21% and is highly significant ($p = 0.001$). We pick up no treatment effect in our longitudinal and pseudo longitudinal analysis suggesting that risk plays a role in entering the market but not through to conclusion. All of this may be a surprise: we might think that kidney donation involves risk but in line with our findings on rationality, it may be that donors have considered the alternatives and given their financial position it may be riskier to opt for a loan shark or to allow debt to accumulate.

The next question concerns patience: are donors simply impatient to raise money which is pushing them towards a rash decision? Mean comparisons between our sample of participants in the kidney market and the general Iranian population derived from Falk et al. (2018) show that our subjects are highly statistically significantly more patient ($p = 0.000$). This might explain why they are considering donation given that alternatives such as selling a car or approaching a loan shark may provide a short term solution to financial difficulties but may also entail more problems in the long-run. Note that *conditional on participating in the organ market*, those with lower levels of patience are more likely to donate.

Finally we have data on a subject's willingness to sign a posthumous organ donation form (to relinquish their organs at death). In our longitudinal and pseudo-longitudinal analysis we find that conditional on participating in the market, those who are more likely to sign the posthumous organ donation form are more likely to go ahead with donation. There is some credibility attached to this since subjects complete the relevant form as part of the experiment. We might consider signing an organ form a measure of risk-taking behavior, however, there is absolutely no correlation between risk-taking behavior and willingness to sign the organ form in our sample. Therefore we lean towards the interpretation that those who complete surgery are more altruistic. This is of course consistent in the sense that the final outcome is typically to save someone's life (contrasting with an alternative way to raise funds such as approaching a loan shark) and may also be undertaken in an effort to support a family which already incorporates a high degree of self-sacrifice.

Table (3) presents the the mean monthly income of our sample as compared to the minimum income in Iran. The minimum monthly wage in Iran was 11,860,273 Rials over the period of this study (ILNA, 2021). The average household income in our sample was 15,205,690 Rials. This is a remarkably small difference suggesting that our samples contains individuals close to what is considered minimum income in Iran. The average household income over the same time

period in Iran was 37,298,889 Rials (SCI, 2021). In addition, 18.8% of people aged 18-35 were unemployed during the period of this study which is much less than our sample of similar age group (ILNA, 2020). In terms of wealth, only 5.5% of our participants own a house compared to 64% in the general population, and 72.5% live in a rental property compared to 26% in the general population in 2018. Only 8.7% of our participants owned a car compare to 53% in the general population (SCI, 2018). The overall picture is of individuals who are in financial need, often unemployed but with a family to support and where the alternatives are grim.

However, despite their financial position, these individuals are typically patient and not especially prone to risk-taking. They are no less rational than the average, but those who end up completing the process may be characterised by more altruism than those who do not. This presents what may seem to be a counter-intuitive result: we might have worried that participants in this market would be relatively irrational and impatient risk-takers, but at least within the confines of our data and analysis this is not the case.

We should pause to recognize that our data is subject to significant limitations. Any field data is by nature noisy and while we have tried to provide incentives where possible, and to follow individuals as best we can, a variety of practical and indeed political issues have made data collection difficult, ranging from the practical and ethical issues involved in following kidney transplant patients (we cannot and should not be in a position to guarantee that donors will attend more than one experimental session or put them under any pressure to do so) through to periods in which political sanctions made data collection difficult. The administration attached to the NGO changed several times during our study which slowed data collection. Nevertheless we are extremely grateful to the NGO for granting us unique and unprecedented access to the Iranian kidney market which made completion of this study possible and allowed us to provide the only data on behavioral characteristics of donors in a regulated kidney market.

The Iranian kidney market has undoubtedly saved lives and waiting times for kidneys have collapsed since its inception (Yanklowitz, October 27, 2015). Moreover, opinions in other countries are shifting in the direction of a regulated market with a recent paper suggesting that 71% of the US population were in favor of a market once a potential system had been explained (Elias et al., 2015). In parallel to this there has also been active discussion and research that seeks to examine the effect of monetary incentives for other health-related activities such as blood donations (Lacetera et al., 2013) and vaccinations (Weaver et al., 2014; Yamin and Gavious, 2013). Our results could be interpreted as part of a more positive re-evaluation of applying economic principles within health markets in recent years. However, we would also suggest caution when attempting to extrapolate from one culture to another with a very different history or set of values. We hope that our findings will at least provide some food for thought for those considering ways to tackle the problem of long waiting times for kidney donation.

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Tables & Figures

Table 1: Behavioral Characteristics by Attrition Status

	mean Unknown-Status	mean Known-Status	Diff.	S.D	# Obs.
Math	1.478261	1.296703	0.182	0.235	137
IQ	3.586957	3.142857	0.444	0.484	137
Risk taking	14.3	13	1.300	1.680	134
Patience	14.46667	11.0625	3.404	2.076	133
Rationality	.8154983	.8675437	-0.052*	0.028	137
Observations	137				
Adjusted R^2					

Note: This table compares mean response/score in different tasks of the pre-donation participants with the unknown final status (column 1) and known final status (column 2).

Table 2: Participants in the Experiment

Post-Donation	Pre-Donation					Total
	Donated	Medical Problem	Change mind	Status Unknown	Pre-Total	
78	35	30	26	46	137	215

Table 3: Demographics & Socioeconomic Information

	Total	Pre-Donation	Post-Donation
Female (%)	18.6	19.7	16.7
Age (%)			
21-32	54.9	59.1	47.4
32+	45.1	40.9	52.6
Education (%)			
Low	42.4	43	41.3
Medium	43.3	40.7	48
High	14.3	16.30	10.7
Employment (%)			
Employed	49.5	47.5	53.25
Income (Iranian Rials)			
Monthly indi. income	14,356,570	13,798,410	15,333,300
Monthly house. income	15,205,690	15,170,510	15,266,670
Household Composition (%)			
Married	79.1	75.9	85.9
Number of children	2	1.9	2.2
Religious attitudes (%)			
Always practice	29.8	23.4	42.6
Sometimes practice	53.7	59.8	41.2
Never practice	16.6	16.8	16.2
Home ownership (%)			
Owner	5.5	2.9	10.9
Renting	72.5	72.8	71.9
Living with parents	22	24.3	17.2
Car ownership (%)	8.7	3.7	20
Insurance (%)			
Insured	52.9	46.3	65.3
Observations	215	137	78

Table 4: Summary Statistics

	mean	# Obs.	S.D.	min	max
	Organ Market Participants				
Math	1.34	215	1.28	0	4
IQ	3.21	215	2.71	0	13
Risk taking	13.93	210	9.76	1	32
Patience	13.07	205	11.79	1	32
Rationality	.847	215	.160	.22223	.99994
	Iranian Population				
Risk taking	16.12	2463	10.94	1	32
Patience	3.84	2472	6.96	1	32

Note: lower panel observations are from Falk et al. (2018) with values re-weighted in accordance with the sampling weights to achieve representatives.

Table 5: Participation in the Iranian Organ Market

	(1)	(2)
male	0.691***	0.735***
	(0.083)	(0.097)
age	-0.019***	-0.019***
	(0.002)	(0.002)
Risk taking		-0.013***
		(0.004)
Patience		0.052***
		(0.004)
N	2722	2644

Notes: Probit estimates of the participation in the Iranian organ market with standard errors in parentheses. Statistical significance is indicated as follows: $*p < 0.10, **p < 0.05, ***p < 0.01$ with precise numbers given in the main text.

## Table 6: Evaluating the Treatment Effects

	Mean	Std. Error	95% Conf. Interval	
		Longitudinal Comparison		
Dif. IQ	-0.500	0.552	-1.693	0.693
Dif. Rik taking	2.821	3.204	-4.099	9.742
Dif. Patience	-0.393	1.872	-4.438	3.652
Dif. Rationality	0.043	0.047	-0.059	0.145
		Pseudo-longitudinal Comparison		
Dif. IQ	0.123	0.556	-0.979	1.225
Dif. Risk taking	-1.704	2.138	-5.940	2.532
Dif. Patience	-7.263***	2.374	-11.965	-2.560
Dif. Rationality	0.007	0.035	-0.063	0.076

N=14 in the longitudinal analysis and N=113 in the pseudo-longitudinal analysis. Statistical significance is indicated as follows: $*p < 0.10, **p < 0.05, ***p < 0.01$ with precise numbers given in the main text.

Table 7: Probit model: Likelihood to Proceed with Transplantation

	(1)	(2)	(3)
male	0.007	0.061	0.369
	(0.413)	(0.478)	(0.501)
age	-0.049	-0.025	-0.037
	(0.036)	(0.044)	(0.046)
math		-0.078	-0.073
		(0.187)	(0.197)
IQ		-0.006	0.014
		(0.103)	(0.105)
Risk taking		-0.008	-0.007
		(0.021)	(0.021)
Patience		-0.038**	-0.039**
		(0.018)	(0.018)
Rationality		-0.257	-0.402
		(1.036)	(1.075)
Blood donation			-0.136
			(0.376)
Organ form			0.873**
			(0.414)

Notes: N=58. Statistical significance is indicated as follows: $*p < 0.10, **p < 0.05,$ $***p < 0.01$ with precise numbers given in the main text.
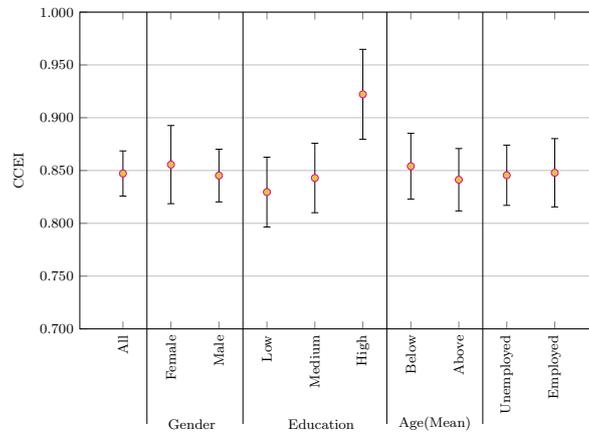
(a) CCEI Scores for Kidney Donors
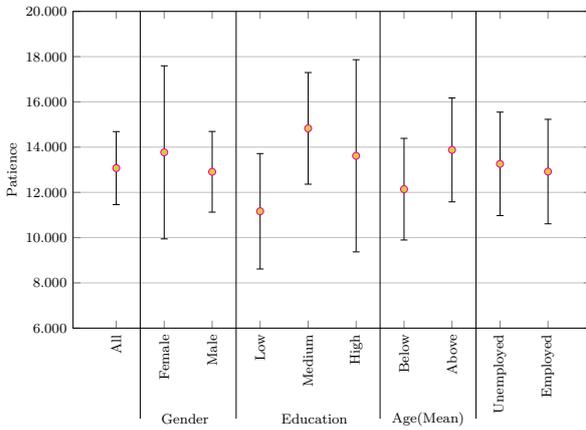
(b) Mean Patience Level for Kidney Donors
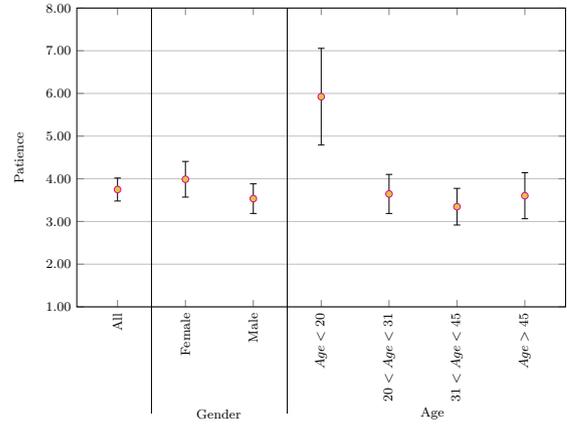
(c) Mean Patience Level for Iranian Population
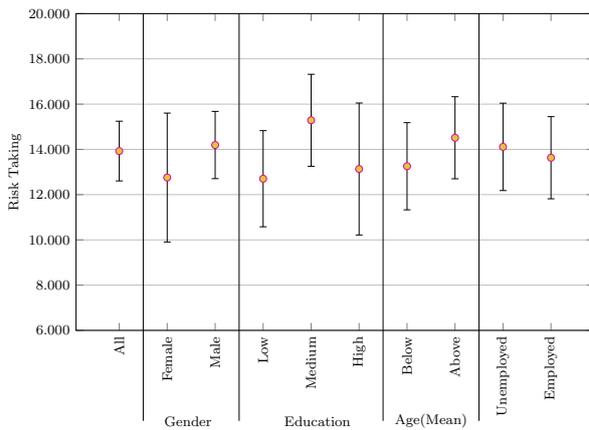
(d) Mean Risk-Taking Level for Kidney Donors
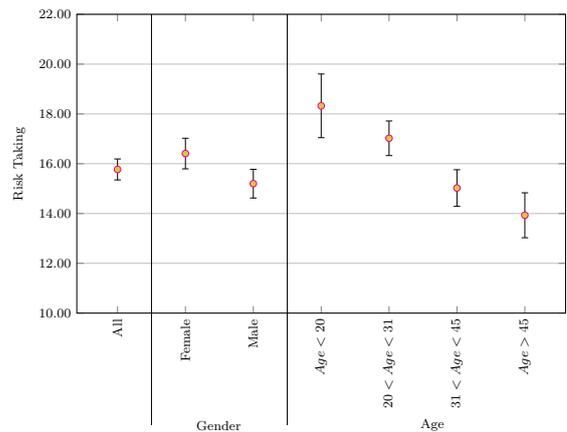
(e) Mean Risk-Taking Level for Iranian Population

Figure 1: CCEI Scores, Mean Patience Level, and Mean Risk-Taking Level for Kidney Donors and the Iranian Population

Online Appendix

Experimental Script

The experimental script is divided into 3 parts.

Part 1 reproduces the information form initially a version translated into English together with the original version in Persian.

Part 2 reproduces the consent form translated into English.

Part 3 provides the full experimental script including the full content of all 11 tasks translated into English.

Part 1: Information Form (translated into English)

Information for participants

The project

The project is being run by the Economics department of the University of Warwick. We plan to carry out a series of experimental sessions with a number of subjects which will involve completing a series of simple questionnaires and tasks. The results of these sessions will hopefully lead to the production of one or more academic research papers.

Your participation

If you agree to participate in the project, we will ask you to attend a session in which you may be asked to complete a number of questionnaires and attempt a number of tasks. You will be paid both a show-up fee and a supplement based on your performance in the tasks you undertake.

The entire process will be entirely anonymous from the very start - your answers and performance will be linked to an ID number and not your true name (for example you may be "subject ID06". There will be no way of linking your true identity to any of the data we have collected.

The anonymous data generated in the session will be used as the basis for at least one academic paper, and possibly more. Since the data is anonymous from the moment the study starts it will be impossible for anyone to link you to the data that is used so your name or identity will never appear in any work related to this research.

You will be asked to sign a consent form if you agree to take part in the study and a receipt at the point when you are paid. Both of these documents will be kept in a secure location for 10 years following the end of the study and then destroyed.

Participation in the project is entirely voluntary and you have the right to withdraw at any point without giving any reason. However, if you do end your participation early you may receive a reduced payment

since the payment is in part performance-related.

Potential benefits

You will receive a show-up fee and an additional fee dependent upon your performance in the tasks during the session. More details about the nature of the payment will be made available during the session when you are provided with further instructions. To give an example, similar sessions in the past have typically resulted in payments in the range of 300,000-750,000 Rials for the session and you will always receive the show-up fee of 200,000 Rials irrespective of your performance during the session.

Complaints

It is up to you whether or not you take part in this interview. Nothing negative will happen if you decide not to take part. Your views are important to us and we hope you will agree to take part. Should you have any complaints relating this study conducted by a University of Warwick, please contact the Deputy Registrar: Jo Horsburgh (J.Horsburgh@warwick.ac.uk) Deputy Registrar, Deputy Registrar's Office, University of Warwick Coventry, CV4 8UW. PA– Natasha Lynch (Tel: +44 24 765 22706; n.lynch@warwick.ac.uk)

Please also see: www2.warwick.ac.uk/services/rss/researchgovernance/complaint_procedure

Information Form in Persian

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اطلاعاتی برای مشارکت‌کنندگان در طرح

طرح

این طرح تحقیقاتی توسط دانشکده اقتصاد دانشگاه واریک (University of Warwick) اجرا می‌شود. هدف ما برگزاری تعدادی جلسه شامل پر کردن پرسشنامه‌ها و تست‌های ساده با اهدا کنندگان کلیه می‌باشد.. نتایج این جلسات در نهایت منجر به تولید یک یا چند مقاله پژوهشی-دانشگاهی خواهد شد.

مشارکت شما

در صورت موافقت شما با همکاری در این پروژه‌ی تحقیقاتی، ما از شما خواهیم خواست که با در ادامه تعدادی پرسشنامه را پر کرده و چند تست ساده را بگذرانید. ابتدا صرفا جهت شرکت در جلسه مبلغی به شما پرداخت خواهد شد. همچنین با توجه به عملکرد شما در پاسخ دادن به تست‌ها نیز مبالغ دیگری، جدای از مبلغ اولیه، به شما پرداخت خواهد شد.

تمامی مراحل انجام پروژه از ابتدا تا انتها بصورت ناشناس انجام خواهد شد، یعنی در همه مراحل جواب‌ها و عملکرد شما نه با نام شما بلکه با یک شماره خاص مرتبط خواهد شد (مثلا مشارکت کننده شماره ۶). در نهایت اسم شما به هیچ عنوان در داده‌هایی که ما جمع‌آوری خواهیم کرد بکار برده نخواهد شد.

داده‌های جمع‌آوری شده بصورت ناشناس برای نوشتن یک و یا چند مقاله علمی مورد استفاده قرار خواهد گرفت. از آنجا که این داده‌ها از ابتدا بصورت ناشناس جمع‌آوری می‌گردد، به هیچ عنوان کسی نخواهد توانست که این داده‌ها را مرتبط با نام و هویت شما بکند؛ بنابرین اسم و هویت شما در هیچ یک از تحقیقاتی که از داده‌های جمع‌آوری شده ما استفاده می‌کنند، نخواهد آمد.

اگر شما موافق مشارکت در این مطالعه باشید، از شما درخواست خواهد شد که فرم رضایت و همچنین رسید بعد از پرداخت پول، را امضا کنید. هر دو این اسناد به مدت ۱۰ سال بعد از اتمام این پروژه در یک مکان امن نگهداری شده و آنگاه از بین خواهند رفت. مشارکت در این پروژه کاملا داوطلبانه می‌باشد و شما مختارید که در هر مرحله‌ای از اجرای آن، بدون اعلام دلیل، انصراف دهید. هر چند، از آنجایی که مقداری از مبلغ پرداختی مرتبط با عملکرد شما در پاسخ دادن به تست‌ها می‌باشد، در صورتی که مشارکت شما نیمه تمام باقی بماند، مبلغ پرداختی به شما کمتر خواهد بود.

منافع بالقوه برای شما

شما بخاطر مشارکت در طرح یک مبلغ اولیه دریافت خواهید کرد. بعلاوه یک مبلغ اضافه که بستگی به عملکردتان در انجام تست‌ها در طول جلسه دارد. جزییات بیشتر مرتبط با نحوه‌ی پرداخت‌ها در طول جلسه به اطلاع شما خواهد رسید. بعنوان مثال، در جلسات مشابه قبلی، مبالغی بین ۳۵ هزار تومان تا ۷۰ هزار تومان برای یک جلسه پرداخت شده است و شما جدای از عملکردتان در جلسه، صرفا برای مشارکت در مطالعه مبلغ ۲۰ هزار تومان دریافت خواهید کرد.

شکایات

مشارکت در این طرح کاملا در اختیار شماست. عدم تمایل شما به مشارکت هیچ بار منفی برای شما نخواهد داشت. نظر شما برای ما محترم خواهد بود، هر چند امیدواریم که در این طرح مشارکت کنید. لطفا در صورت داشتن هر شکایتی مرتبط با اجرای این مطالعه توسط دانشگاه واریک، با ایمیل زیر تماس بگیرید:

Jo Horsburgh (J.Horsburgh@warwick.ac.uk)

Deputy Registrar, Deputy Registrar's Office, University of Warwick

Coventry, CV4 8UW

PA – Natasha Lynch (Tel: +44 24 765 22706; n.lynch@warwick.ac.uk)

لطفا   همچنین   به   لینک   زیر   مراجعه   کنید:
www2.warwick.ac.uk/services/rss/researchgovernance/complaints_procedure/

</div>

Part 2: Consent Form

I confirm that I have read and understood the information sheet dated [DATE] which I may keep for my records.

I agree to take part in the above study and am willing to take part in the session dated [DATE] which may involve undertaking a number of tasks and/or completing a number of questionnaires.

I understand that the data generated during the session will be entirely anonymous so my name and identity will not be linked to the data that is generated.

I understand that my anonymous data may also be used for future research.

I understand that my participation is voluntary and that I am free to withdraw at any time.

Name of person taking consent:

Date:

Please complete the part below

Name of participant:

Signature:

Part 3: Main Tasks

Task 1

This section consists of 12 questions. Please answer all the questions to the best of your ability.

1.1- How would you rate your happiness at the moment? (1-7)

Note: 1 is completely sad, 2 is very sad, 3 is fairly sad, 4 is neither happy nor sad, 5 is fairly happy, 6 is very happy, 7 is completely happy

1.2- Are you male or female? (m/f) 1-Male 2-Female

1.3- What is your age? (years,months) (yymm)

1.4- How many siblings do you have?

1.5- What is your religion? 1- Islam-Shiite 2-Islam-Sunni 3-Islam 4-Christian 5-None 6-Others

1.6- Do you pray or fast during Ramadan? 1- Always 2- Sometimes 3-Never

1.7- Are you married? (y/n) 1-Yes 2- No 3- Divorced

1.8-Do you have children? (y/n) 1-Yes 2- No

1.9- What is your highest level of education?

(1) Elementary school (2) Secondary school (3) High school (4) Diploma (5) Upper diploma (6) Bachelor and higher (7) Illiterate

1.10- Have you ever donated blood before? 1-Yes 2- No

1.11- Do you plan to donate organs after the event of your death? 1-Yes 2- No

1.12- Do you know the how much someone who donates his kidney earns?

Task 2

Please answer the following questions to the best of your ability.

2.1- Have you ever been employed? 1-Yes (Go to 2.2) 2-No (Go to 2.9)

2.2- Are you currently employed? 1- Yes (Go to 2.3) 2-No (Go to 2.5)

If you are employed:

2.3 What is your current monthly salary?

2.4 What is your job title?

Go to 2.9

If you are unemployed:

2.5 What was your last monthly salary?

2.6 What was your job title?

2.7 When did you leave that employment (unemployment duration in month)?

2.8 For what reason?

2.9 Do you own a house or rent a place: 1- Own 2- Rent 3-Live with parents

2.10-Do you own a car? 1-Yes 2-No

If you are married:

2.11- Is your wife/husband employed? 1-Yes 2- No

2.12- What is their monthly salary?

2.13- Suppose we are willing to give you some money to change your decision. What's the minimum amount that makes you happy to do so?

2.14- Do you know anyone around you who has donated his/her kidney before? 1-Yes 2-No

2.15- Did you discuss the decision to donate your kidney with anyone?

1-Yes, and they were okay with it. 2-Yes, and they were not happy with it. 3- No

2.16- How important was the advice of others when making the decision? 1-very important, 2-important, 3-not important.

2.17- How much you were paid for your kidney?

2.18- Were you happy to still donate your kidney if the receiver was not an Iranian? 1-Yes, 2-No

2.19- Were you happy to still donate your kidney for 10 percent less than the amount that you have received? 1-Yes 2-No

2.20- Are you happy to sign the organ donation for at the end of this session? 1- Yes, 2-No

Task 3

3.1- Do you expect your happiness level to fall after the operation has been completed? 1-Yes, 2-No

3.2- How would you rate your happiness after the operation is complete? (1-7)

Note: 1 is completely sad, 2 is very sad, 3 is fairly sad, 4 is neither happy nor sad, 5 is fairly happy, 6 is very happy, 7 is completely happy

3.3- How about 6 months after the operation? (1-7)

Note: 1 is completely sad, 2 is very sad, 3 is fairly sad, 4 is neither happy nor sad, 5 is fairly happy, 6 is very happy, 7 is completely happy

3.4- What other alternatives you considered to selling your kidney?

1-Bank loan 2- Borrowing from family and friends 3- Sell my assets (house, car, jewellery, etc) 4- No alternative

3.5- Do you think you will ever fully recover? 1- Yes, 2-No, 3- I don't know

3.6- What is your blood type?

A+ A- B+ B- O+ O- AB+ AB-

3.7- Do you think your physical condition will deteriorate after the donation? 1- yes, 2-No 3- I don't know

3.8 How about 6 months later? 1- Yes, 2- No, 3- I don't know

3.9- Do you think your life will be negatively affected by the operation? 1- Yes, 2- No, 3- I don't know

3.10- How do you think your employment prospects will change immediately after the operation? 1-Improved 2- Worsened 3- No effect

3.11- How about 6 months later? 1- Improved 2- Worsened 3- No effect

3.12- Do you have any health insurance? 1- Social Security 2- Health Insurance 3- Iranian Health Insurance 4- Not insured

3.13- Under which of the following conditions you will be willing to change your donation decision?

1-A bank loan of 100 million Rials, 3 years payment length, and maximum of . . . percent interest rate

2-Leasing a Saipa's Pride, payment in 5 years, and maximum monthly payment of . . . . .

3.14- Any similar conditions as above? . . . .

Task 4

Please do your best to answer the following questions – you will be paid 10000 Rials per correct answer. You may use a pencil and paper to help answer the questions but no calculators. There is also an example provided:

Example: You know that your chance to win 5000 RLS in a gamble is 10%. If you repeated this many times what would you make on average in each gamble.

Answer: 500 RLS.

4.1- What's 50% of 200,000 Rials?

4.2- You know that your chance to win 5000 Rials in a gamble is 30%. If you repeated this many times what would you make on average in each gamble?

4.3- The original price of a coat is 200000 RLS and you pay 150000 RLS for it. Calculate the percentage discount?

4.4- Job 1 pays 5 million Rials per month. Job 2 pays 2 million per month plus 15% commission. How much would you need to sell to get paid the same as job 1?

Task 5

You have 8 minutes to answer all 15 questions.

Example: The correct answer in the following example is 7.

Example   5.1
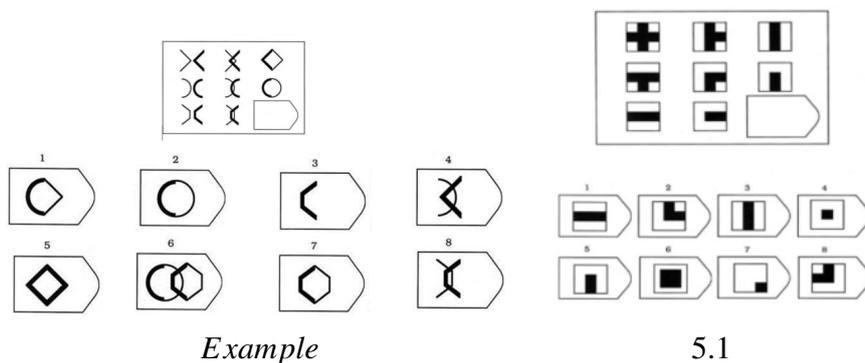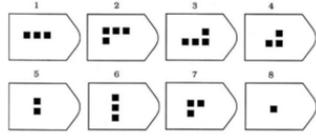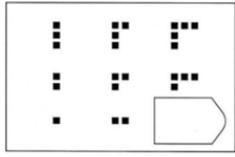
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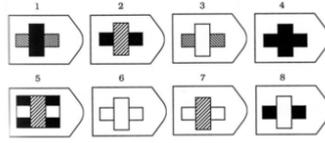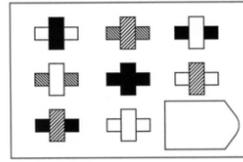
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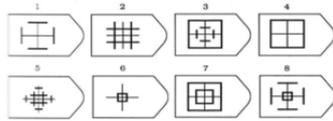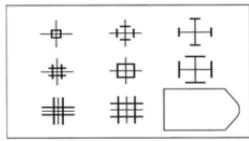
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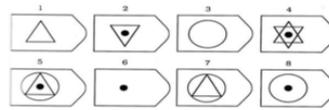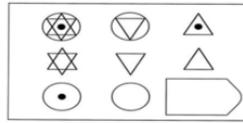
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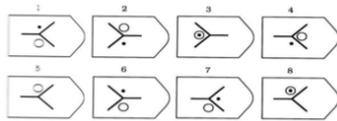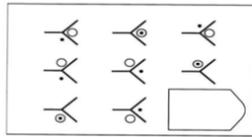
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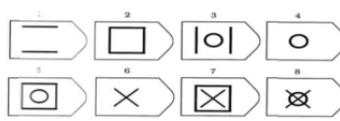
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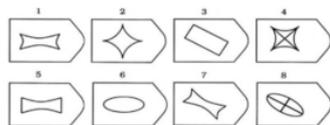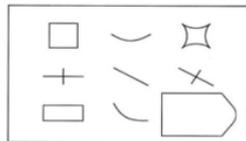
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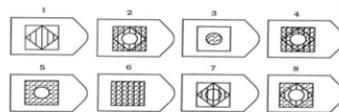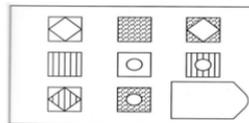
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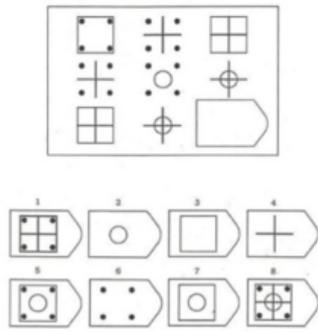
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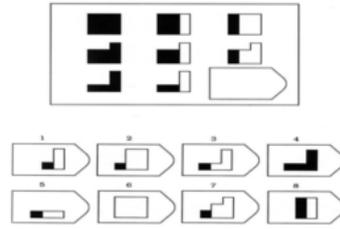
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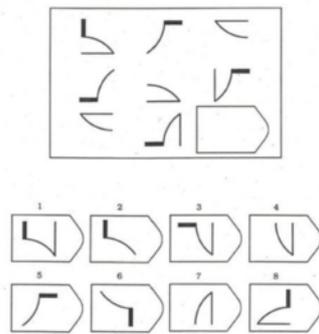
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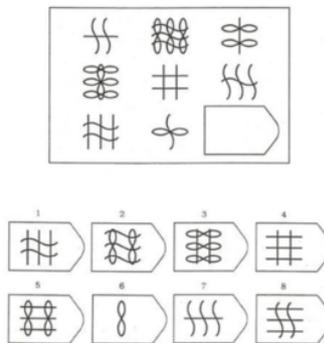
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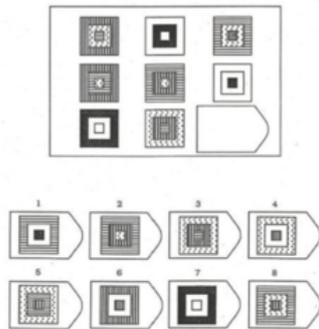
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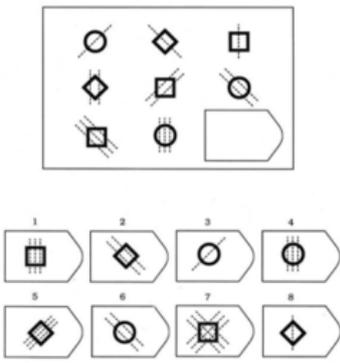
5.15

Task 6

In this section, 25 charts are shown. In each chart, your task is to distribute points between two accounts A, the horizontal axis, and B, the vertical axis. Note that every 4 points is equivalent to 10,000 Rials. In each round, after you allocate your points, the computer will randomly select one account. Each of the two accounts A and B have the same chance of being selected. Your earnings in this round then is equal to the points you have allocated to the selected account. You will be paid in cash at the end of the session. An example of the charts that you will be shown is given below:
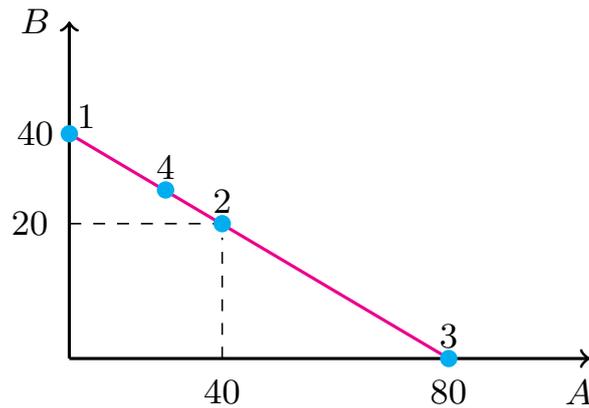
You may choose any point on the red line, for example, points 1, 2, 3, 4 or any other points you wish. By choosing a point on the line, the points that are allocated to each account A and B are determined. For example, if you choose point 2 on the line, you allocate 40 points to account A and 20 points to account b. The probability that each of the accounts A and B is selected is the same and is 50 percent. Hence, by choosing point 2, there is a 50 percent chance that you earn 40 points (equivalent to 100,000 Rials) and 50 percent chance that you earn 20 points (50,000 Rials). If you choose point 3, then there is a 50 percent chance that you earn 80 points (200,000 Rials) and 50 percent chance that you earn 0 points (0 rials). The points are calculated at the end of the session and you will be paid what you earn. After calculating the points, a new chart will be shown. Each chart is randomly selected and is independent of your choice in the previous chart. Your task in each chart is the same as described above. A total of 25 charts like the example above will be shown. How your reward is calculated: After round 25 and the end of this activity, a chart is randomly selected by the computer from the 25 charts shown to you. The computer will randomly selects a number between 1 and 25. This number is the number of the chart from which your points will be calculated and you will be paid from. In order to practice, you will first be shown 2 practice charts. You can click the start button once you are sure you do not have any problem with this section to display the main charts.

Task 7

Start with the first question. Depending on whether the participant chooses the lottery or the safe option, go to the respective next question. This procedure is repeated four times.

Please imagine the following situation: You can choose between a sure payment and a lottery. The lottery gives you a 50 percent chance of receiving 300 thousands Rial. With an equally high chance you receive nothing. Now imagine you had to choose between the lottery and a sure payment. We will present to you have different situations. The lottery is the same in all situations The sure payment is different in every situation.

1. What would you prefer: a 50 percent chance of winning 300 thousands Rial when at the same time there is 50 percent chance of winning nothing, or would you rather have the amount of 160 thousands Rial as a sure payment?

(a) lottery go to question 17

(b) sure payment go to question 2

2. What would you prefer: a 50 percent chance of winning 300 thousands Rial when at the same time there is 50 percent chance of winning nothing, or would you rather have the amount of 80 thousands Rial as a sure payment?

(a) lottery go to question 10

(b) sure payment go to question 3

3. What would you prefer: a 50 percent chance of winning 300 thousands Rial when at the same time there is 50 percent chance of winning nothing, or would you rather have the amount of 40 thousands Rial as a sure payment?

(a) lottery go to question 4

(b) sure payment go to question 7

4. What would you prefer: a 50 percent chance of winning 300 thousands Rial when at the same time there is 50 percent chance of winning nothing, or would you rather have the amount of 60 thousands Rial as a sure payment?

(a) lottery go to question 5

(b) sure payment go to question 6

5. What would you prefer: a 50 percent chance of winning 300 thousands Rial when at the same time there is 50 percent chance of winning nothing, or would you rather have the amount of 70 thousands Rial as a sure payment?

(a) lottery

(b) sure payment

6. What would you prefer: a 50 percent chance of winning 300 thousands Rial when at the same time there is 50 percent chance of winning nothing, or would you rather have the amount of 50 thousands Rial as a sure payment?

(a) lottery

(b) sure payment

7. What would you prefer: a 50 percent chance of winning 300 thousands Rial when at the same time there is 50 percent chance of winning nothing, or would you rather have the amount of 20 thousands Rial

as a sure payment?

(a) lottery go to question 8

(b) sure payment go to question 9

8. What would you prefer: a 50 percent chance of winning 300 thousands Rial when at the same time there is 50 percent chance of winning nothing, or would you rather have the amount of 30 Thousands Rial as a sure payment?

(a) lottery

(b) sure payment

9. What would you prefer: a 50 percent chance of winning 300 thousands Rial when at the same time there is 50 percent chance of winning nothing, or would you rather have the amount of 10 Thousands Rial as a sure payment?

(a) lottery

(b) sure payment

10. What would you prefer: a 50 percent chance of winning 300 thousands Rial when at the same time there is 50 percent chance of winning nothing, or would you rather have the amount of 120 Thousands Rial as a sure payment?

(a) lottery go to question 14

(b) sure payment go to question 11

11. What would you prefer: a 50 percent chance of winning 300 thousands Rial when at the same time there is 50 percent chance of winning nothing, or would you rather have the amount of 100 Thousands Rial as a sure payment?

(a) lottery go to question 13

(b) sure payment go to question 12

12. What would you prefer: a 50 percent chance of winning 300 thousands Rial when at the same time there is 50 percent chance of winning nothing, or would you rather have the amount of 90 Thousands Rial as a sure payment?

(a) lottery

(b) sure payment

13. What would you prefer: a 50 percent chance of winning 300 thousands Rial when at the same time

there is 50 percent chance of winning nothing, or would you rather have the amount of 110 Thousands Rial as a sure payment?

(a) lottery

(b) sure payment

14. What would you prefer: a 50 percent chance of winning 300 thousands Rial when at the same time there is 50 percent chance of winning nothing, or would you rather have the amount of 140 Thousands Rial as a sure payment?

(a) lottery go to question 15

(b) sure payment go to question 16

15. What would you prefer: a 50 percent chance of winning 300 thousands Rial when at the same time there is 50 percent chance of winning nothing, or would you rather have the amount of 150 Thousands Rial as a sure payment?

(a) lottery

(b) sure payment

16. What would you prefer: a 50 percent chance of winning 300 thousands Rial when at the same time there is 50 percent chance of winning nothing, or would you rather have the amount of 130 Thousands Rial as a sure payment?

(a) lottery

(b) sure payment

17. What would you prefer: a 50 percent chance of winning 300 thousands Rial when at the same time there is 50 percent chance of winning nothing, or would you rather have the amount of 240 Thousands Rial as a sure payment?

(a) lottery go to question 25

(b) sure payment go to question 18

18. What would you prefer: a 50 percent chance of winning 300 thousands Rial when at the same time there is 50 percent chance of winning nothing, or would you rather have the amount of 200 Thousands Rial as a sure payment?

(a) lottery go to question 22

(b) sure payment go to question 19

19. What would you prefer: a 50 percent chance of winning 300 thousands Rial when at the same time there is 50 percent chance of winning nothing, or would you rather have the amount of 180 Thousands Rial as a sure payment?

(a) lottery go to question 20

(b) sure payment go to question 21

20. What would you prefer: a 50 percent chance of winning 300 thousands Rial when at the same time there is 50 percent chance of winning nothing, or would you rather have the amount of 190 Thousands Rial as a sure payment?

(a) lottery

(b) sure payment

21. What would you prefer: a 50 percent chance of winning 300 thousands Rial when at the same time there is 50 percent chance of winning nothing, or would you rather have the amount of 170 Thousands Rial as a sure payment?

(a) lottery

(b) sure payment

22. What would you prefer: a 50 percent chance of winning 300 thousands Rial when at the same time there is 50 percent chance of winning nothing, or would you rather have the amount of 220 Thousands Rial as a sure payment?

(a) lottery go to question 23

(b) sure payment go to question 24

23. What would you prefer: a 50 percent chance of winning 300 thousands Rial when at the same time there is 50 percent chance of winning nothing, or would you rather have the amount of 230 Thousands Rial as a sure payment?

(a) lottery

(b) sure payment

24. What would you prefer: a 50 percent chance of winning 300 thousands Rial when at the same time there is 50 percent chance of winning nothing, or would you rather have the amount of 210 Thousands Rial as a sure payment?

(a) lottery

(b) sure payment

25. What would you prefer: a 50 percent chance of winning 300 thousands Rial when at the same time there is 50 percent chance of winning nothing, or would you rather have the amount of 280 Thousands Rial as a sure payment?

(a) lottery go to question 29

(b) sure payment go to question 26

26. What would you prefer: a 50 percent chance of winning 300 thousands Rial when at the same time there is 50 percent chance of winning nothing, or would you rather have the amount of 260 Thousands Rial as a sure payment?

(a) lottery go to question 27

(b) sure payment go to question 28

27. What would you prefer: a 50 percent chance of winning 300 thousands Rial when at the same time there is 50 percent chance of winning nothing, or would you rather have the amount of 270 Thousands Rial as a sure payment?

(a) lottery

(b) sure payment

28. What would you prefer: a 50 percent chance of winning 300 thousands Rial when at the same time there is 50 percent chance of winning nothing, or would you rather have the amount of 250 Thousands Rial as a sure payment?

(a) lottery

(b) sure payment

29. What would you prefer: a 50 percent chance of winning 300 thousands Rial when at the same time there is 50 percent chance of winning nothing, or would you rather have the amount of 300 thousands Rial as a sure payment?

(a) lottery go to question 31

(b) sure payment go to question 30

30. What would you prefer: a 50 percent chance of winning 300 thousands Rial when at the same time there is 50 percent chance of winning nothing, or would you rather have the amount of 290 Thousands Rial as a sure payment?

(a) lottery

(b) sure payment

31. What would you prefer: a 50 percent chance of winning 300 thousands Rial when at the same time there is 50 percent chance of winning nothing, or would you rather have the amount of 310 Thousands Rial as a sure payment?

(a) lottery

(b) sure payment

Task 8

Please answer the following question to the best of your ability.

8.1- What amount of money would make you indifferent to 1,000,000 Rials paid to you in 2 weeks?

8.2- What amount of money would make you indifferent to 1,000,000 Rials paid to you in 1 month?

8.3- How much money did you receive for donating your kidney from the receiver not the government?

8.4- Have you spent the money? 1-Yes 2-No

8.5- If so, please describe what you did with the money:

8.6- Please describe what other non-monetary compensations you have received for donating your kidney?

8.7 Are you on any prescribed medication for depression? (Yes/No)

8.8 How confident are you that if you needed a kidney yourself in the future you would be able to obtain one through the current system? Please indicate which statement below best represents your belief. (very sure that you would) (sure that you would) (uncertain) (sure that you would not) (very sure that you would not)

8.9 Would you recommend being a donor to family and friends who needed the money? (Yes/No)

Task 9

Start with the first question. Depending on whether the participant chooses the earlier or the delayed option, go to the respective next question. This procedure is repeated four times.

Suppose you were given the choice between the following: receiving a payment today or a payment in 2 weeks. We will now present to you have situations. The payment today is the same in each of these

situations. The payment in 2 weeks is different in every situation. For each of these situations we would like to know which you would choose.

1. Would you rather receive 80 thousands Rial today or 142 thousands Rial in 2 weeks?

(a) today go to question 17 (b) in 2 weeks go to question 2

2. Would you rather receive 80 thousands Rial today or 111 thousands Rial in 2 weeks?

(a) today go to question 10 (b) in 2 weeks go to question 3

3. Would you rather receive 80 thousands Rial today or 95 thousands Rial in 2 weeks?

(a) today go to question 7 (b) in 2 weeks go to question 4

4. Would you rather receive 80 thousands Rial today or 88 thousands Rial in 2 weeks?

(a) today go to question 6 (b) in 2 weeks go to question 5

5. Would you rather receive 80 thousands Rial today or 84 thousands Rial in 2 weeks?

(a) today (b) in 2 weeks

6. Would you rather receive 80 thousands Rial today or 92 thousands Rial in 2 weeks?

(a) today (b) in 2 weeks

7. Would you rather receive 80 thousands Rial today or 103 thousands Rial in 2 weeks?

(a) today go to question 8 (b) in 2 weeks go to question 9

8. Would you rather receive 80 thousands Rial today or 107 thousands Rial in 2 weeks?

(a) today (b) in 2 weeks

9. Would you rather receive 80 thousands Rial today or 99 thousands Rial in 2 weeks?

(a) today (b) in 2 weeks

10. Would you rather receive 80 thousands Rial today or 126 thousands Rial in 2 weeks?

(a) today go to question 14 (b) in 2 weeks go to question 11

11. Would you rather receive 80 thousands Rial today or 119 thousands Rial in 2 weeks?

(a) today go to question 13 (b) in 2 weeks go to question 12

12. Would you rather receive 80 thousands Rial today or 115 thousands Rial in 2 weeks?

(a) today (b) in 2 weeks

13. Would you rather receive 80 thousands Rial today or 123 thousands Rial in 2 weeks?

(a) today (b) in 2 weeks

14. Would you rather receive 80 thousands Rial today or 134 thousands Rial in 2 weeks?

(a) today go to question 16 (b) in 2 weeks go to question 15

15. Would you rather receive 80 thousands Rial today or 130 thousands Rial in 2 weeks? (a) today (b) in 2 weeks

16. Would you rather receive 80 thousands Rial today or 138 thousands Rial in 2 weeks?

(a) today (b) in 2 weeks

17. Would you rather receive 80 thousands Rial today or 173 thousands Rial in 2 weeks?

(a) today go to question 18 (b) in 2 weeks go to question 25

18. Would you rather receive 80 thousands Rial today or 188 thousands Rial in 2 weeks?

(a) today go to question 22 (b) in 2 weeks go to question 19

19. Would you rather receive 80 thousands Rial today or 181 thousands Rial in 2 weeks?

(a) today go to question 20 (b) in 2 weeks go to question 21

20. Would you rather receive 80 thousands Rial today or 185 thousands Rial in 2 weeks?

(a) today (b) in 2 weeks

21. Would you rather receive 80 thousands Rial today or 177 thousands Rial in 2 weeks?

(a) today (b) in 2 weeks

22. Would you rather receive 80 thousands Rial today or 196 thousands Rial in 2 weeks?

(a) today go to question 23 (b) in 2 weeks go to question 24

23. Would you rather receive 80 thousands Rial today or 200 thousands Rial in 2 weeks?

(a) today (b) in 2 weeks

24. Would you rather receive 80 thousands Rial today or 192 thousands Rial in 2 weeks?

(a) today (b) in 2 weeks

25. Would you rather receive 80 thousands Rial today or 157 thousands Rial in 2 weeks?

(a) today go to question 29 (b) in 2 weeks go to question 26

26. Would you rather receive 80 thousands Rial today or 150 thousands Rial in 2 weeks?

(a) today go to question 28 (b) in 2 weeks go to question 27

27. Would you rather receive 80 thousands Rial today or 146 thousands Rial in 2 weeks?

(a) today (b) in 2 weeks

28. Would you rather receive 80 thousands Rial today or 154 thousands Rial in 2 weeks?

(a) today (b) in 2 weeks

29. Would you rather receive 80 thousands Rial today or 165 thousands Rial in 2 weeks?

(a) today go to question 31 (b) in 2 weeks go to question 30

30. Would you rather receive 80 thousands Rial today or 161 thousands Rial in 2 weeks?

(a) today (b) in 2 weeks

31. Would you rather receive 80 thousands Rial today or 169 thousands Rial in 2 weeks?

(a) today (b) in 2 weeks

Task 10

How well do the following statements describe your personality? Please indicate which reply you think fits you the best.

I see myself as someone who . . .

10.1 . . . is reserved

(1-disagree strongly) (2-disagree a little) (3-neither agree nor disagree) (4-agree a little) (5-agree strongly)

10.2 . . . is generally trusting

(disagree a little) (neither agree nor disagree) (agree a little) (agree strongly)

10.3 . . . tends to be lazy

(disagree a little) (neither agree nor disagree) (agree a little) (agree strongly)

10.4. . . is relaxed, handles stress well

(disagree a little) (neither agree nor disagree) (agree a little) (agree strongly)

10.5 . . . has few artistic interests

(disagree a little) (neither agree nor disagree) (agree a little) (agree strongly)

10.6 . . . is outgoing, sociable

(disagree a little) (neither agree nor disagree) (agree a little) (agree strongly)

10.7 . . . tends to find fault with others

(disagree a little) (neither agree nor disagree) (agree a little) (agree strongly)

10.8 . . . does a thorough job

(disagree a little) (neither agree nor disagree) (agree a little) (agree strongly)

10.9 . . . gets nervous easily

(disagree a little) (neither agree nor disagree) (agree a little) (agree strongly)

10.10 . . . has an active imagination

(disagree a little) (neither agree nor disagree) (agree a little) (agree strongly)

Task 11

For each of the following statements, please indicate which reply best describes you.

11.1 I plan tasks carefully

(rarely/never)(occasionally)(often)(almost always)

11.2 I do things without thinking

(rarely/never)(occasionally)(often)(almost always)

11.3 I don't "pay attention"

(rarely/never)(occasionally)(often)(almost always)

11.4 I concentrate easily

(rarely/never)(occasionally)(often)(almost always)

11.5 I save money on a regular basis

(rarely/never)(occasionally)(often)(almost always)

11.6 I squirm at plays or lectures

(rarely/never)(occasionally)(often)(almost always)

11.7 I am a careful thinker

(rarely/never)(occasionally)(often)(almost always)

11.8 I plan for job security

(rarely/never)(occasionally)(often)(almost always)

11.9 I say things without thinking

(rarely/never)(occasionally)(often)(almost always)

11.10 I act "on impulse"

(rarely/never)(occasionally)(often)(almost always)

11.11 I get easily bored when solving thought problems

(rarely/never)(occasionally)(often)(almost always)

11.12 I act on the spur of the moment

(rarely/never)(occasionally)(often)(almost always)

11.13 I buy things on impulse

(rarely/never)(occasionally)(often)(almost always)

11.14 I am restless at lectures or talks

(rarely/never)(occasionally)(often)(almost always)

11.15 I plan for the future

(rarely/never)(occasionally)(often)(almost always)

End of session

Thanks for your participation.