"Show me the Money": Incentivizing the Social Discounting Task

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1. Background

Altruism is one of the single most important social preferences driving human behavior. Simon (1995) incorporates altruism into the utility function using the notion of interpersonal or social distance. The Social Discounting Task (SDT) is employed as a corresponding measure of altruism. With one exception, the conventional laboratory experiments on social discounting conducted to date, do not employ real incentives. In Economics experiments real pay-offs is a methodological prerequisite for incentive compatibility. There is conclusive empirical evidence in fact that outcomes in experiments offering hypothetical pay-offs are different from those in experiments paying subjects real money (Vlaev, 2012). Yi et al (2012) recognises the limitation of the widespread use of hypothetical incentives in social discounting experiments. In applying laboratory results meaningfully to real-life situations, it is important to know the extent to which choices among hypothetical rewards correspond to choices among real rewards. This paper investigates the extent to which incentivizing the Social Discounting Task (SDT) impact on the resultant crossover points and social discounting function.

2. Methods

Participants

The subjects are 45 undergraduate students (20 male, 25 female) at the University of the Free State, South Africa. Subjects were recruited using flyers distributed amongst students attending Economics lectures for third year students.

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Procedure

Following a pilot of the relevant elicitation procedure with a small group of post-graduate student subjects, a pencil and paper instrument was administered to study participants. Subjects each received a show-up fee of R30 and were asked to complete Rachlin & Jones' (2008) standard Social Discounting Task (SDT) (see Annexure 1).

The instructions are as follows:

The following experiment requires that you have imagined making a list of the 100 people closest to you in the world ranging from your dearest friend or relative at position #1 to a mere acquaintance at #100.

On the following pages participants were asked to make choices between an amount of money for themselves versus an amount of money for each of the people they have identified from their list.

Each page contained the following instructions:

Imagine you made a list of the 100 people closest to you in the world ranging from your dearest friend or relative at #1 to a mere acquaintance at #100.
Now imagine the following choices between an amount of money for you and an amount for the #[N] person on the list. Circle A or B to indicate which you would choose in EACH line.
A. R180 for you alone or B. R160 for the #[N] person on the list.
A. R160 for you alone or B. R160 for the #[N] person on the list.
-----Down To-----
A. R20 for you alone or B. R160 for the # [N] person on the list.
A. R0 for you alone or B. R160 for the # [N] person on the list.

Counter-balancing: For half of the participants in each group, the pages were organized in ascending order of social distance (person #1, #2, #5, #10, #20, #50, #100); for the other half, in descending order.

Treatment: Upon arrival at the experimental venues, subjects were assigned consecutively to two different venues. Half of the participants were randomly assigned to the real money group (n= 22) where an adapted version of the standard task offering real pay-offs was administered. The other half were assigned to the hypothetical money group (n = 23) and instructed to complete the standard non-incentivized task. The only difference in the instructions for the Social Discounting Task (SDT) was a section that read, “None of your choices will be for actual money, but we ask that you still make choices as if real money were involved” (non-payment group) versus “One of the choices you make will be for real money”, inclusive of details of the particular payment procedures (payment group).

During the experiments, study participants also completed a short post-experimental questionnaire, including questions regarding information on the actual persons occupying each social distance, and basic socio-demographics and family characteristics. A 10-point self-representation scale of perceived closeness serves as a manipulation check.

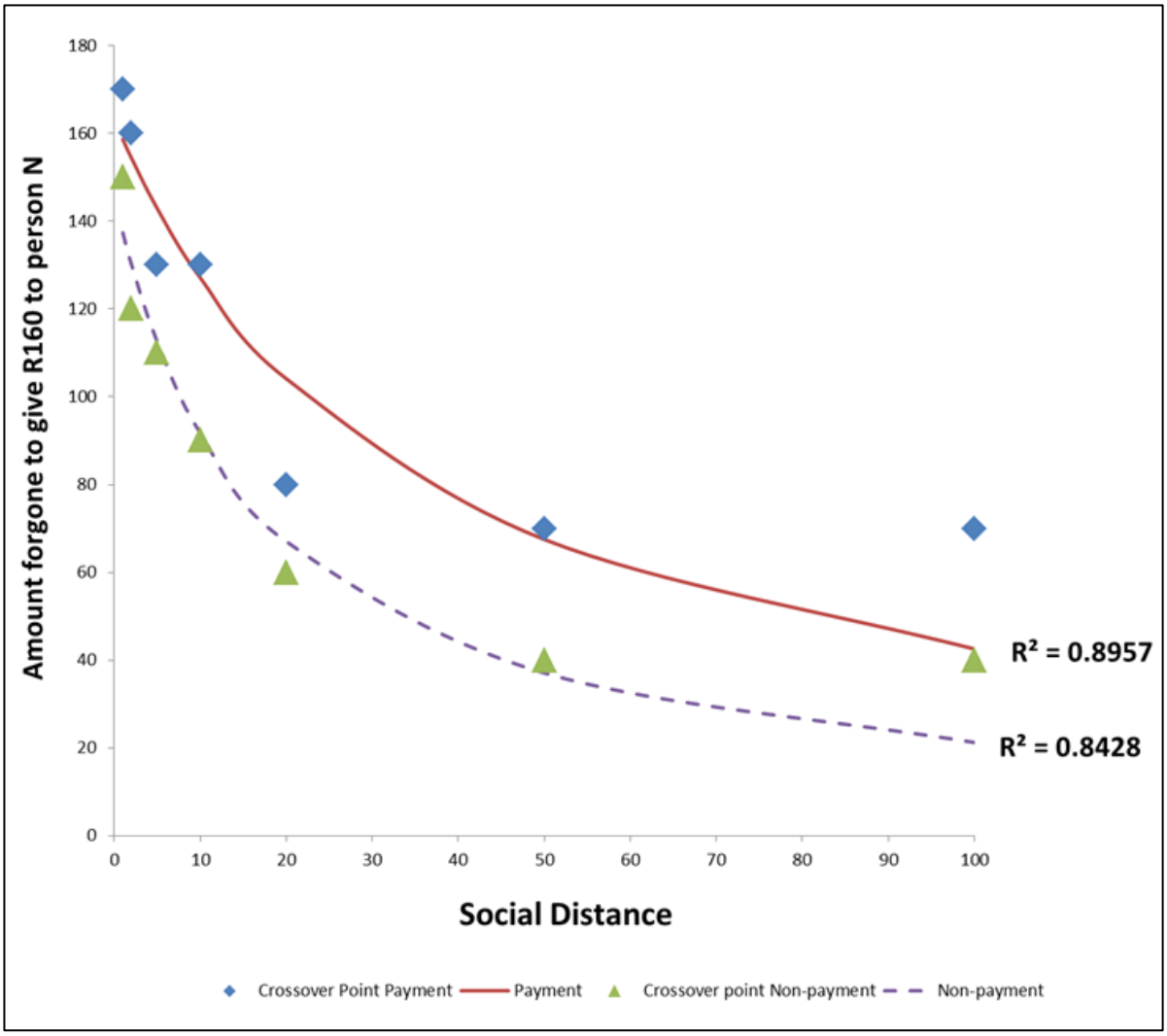
At the completion of the experiment, a random incentive system (RIS) was used to calculate subjects’ earnings (see Annexure 2). Both the treatment and control groups, who were debriefed as to the purpose of the study following completion of the experiment, were paid in private. Subjects on average earned R150.

3. Results

The Social Discounting Task (SDT) measures altruism as, the amount of money a participant [is] willing to forgo to give a fixed amount to another person “situated at a specific social distances (Rachlin and Jones (2008). Median crossover points were determined for each arm and corresponding social discounting functions were estimated. The crossover point is the mean point at which the participant switched

from choosing A to choosing B. For example, if a participant chose the selfish option at R180 and R160 and switched to the generous option at R140, the crossover point was calculated as R150. We expect the majority of participants to be more altruistic towards people ranked closer, hence the hyperbolic nature of the social discounting function.

Figure 1: Social discounting function, by treatment group



Note: Fourteen participants crossed over between A and B multiple times on individual pages; those participants' data have been excluded from the above analysis.

Figure 1 shows the median crossover points for each of the 7 social distances tested for both the payment and non-payment groups. However the difference is not

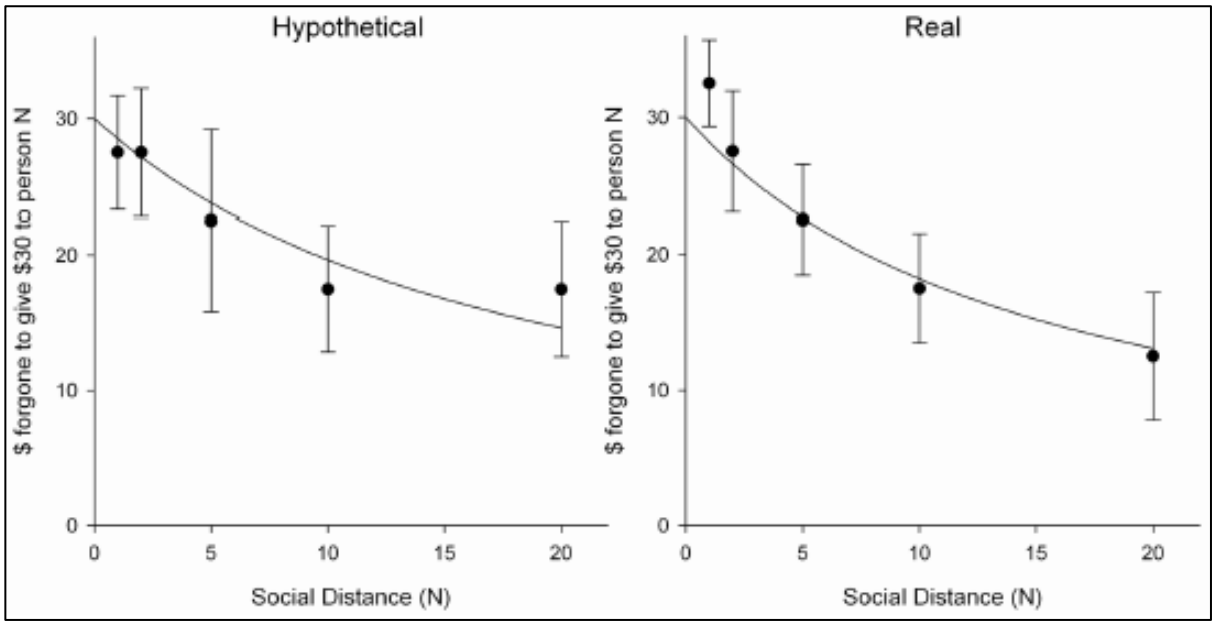
statistically significant. The regression lines is the best fit of the following hyperbolic discount function (Mazur, 1987):

$$v = \frac{V}{1 + kN}$$

, where v = median crossover point; V = undiscounted value of the reward; N = social distance; *k* = a constant measuring steepness of discounting. The fit ($R^2 = 0.8957$) for the payment group is superior to the non-payment fit ($R^2 = 0.8428$).

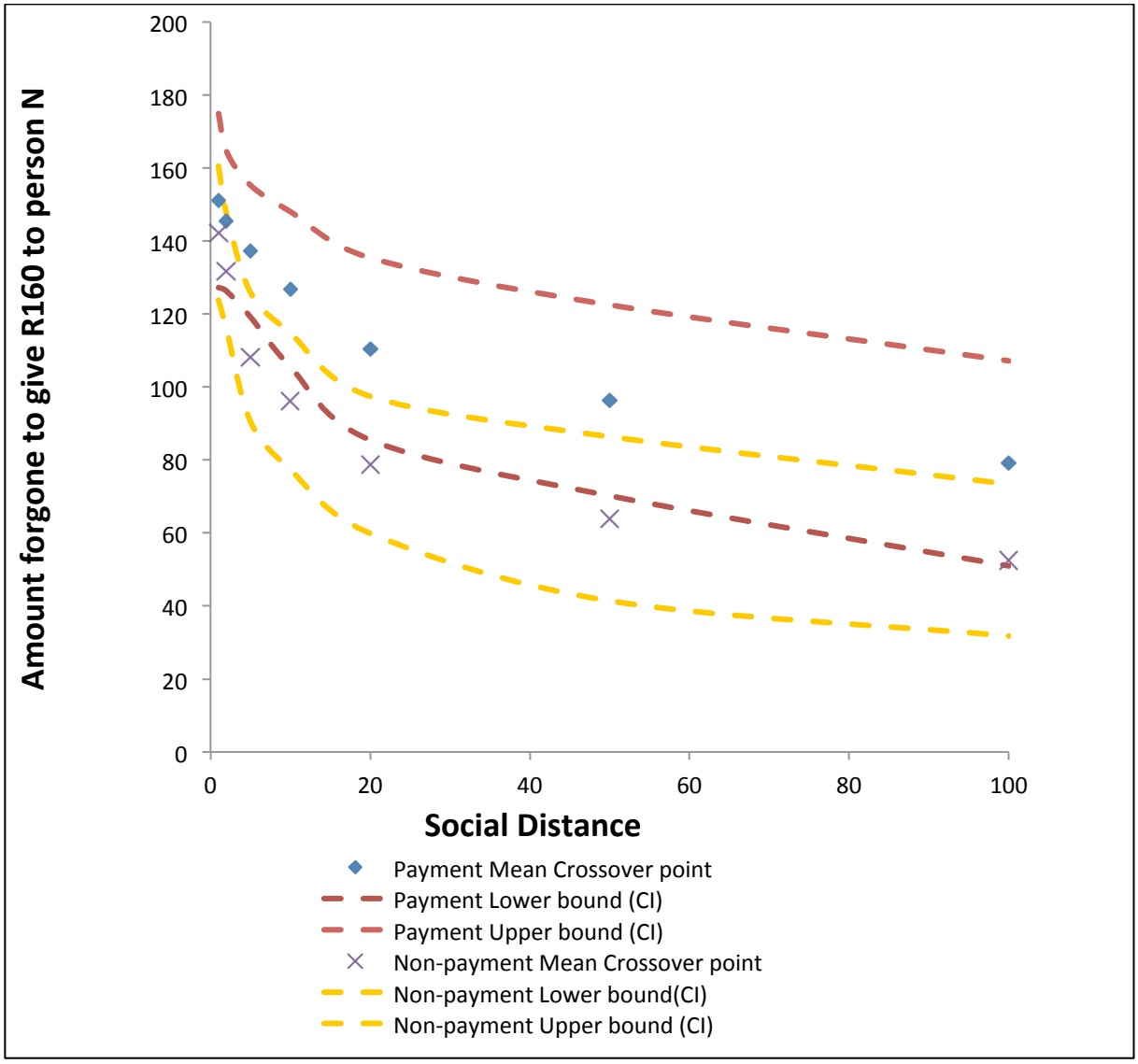
According to Figure 1, subjects in the payment group exhibited more altruistic behaviour compared to subjects in the non-payment group, as reflected in the higher social discounting function. Locey et al (2011), in the only similar study with 40 undergraduate students at the State University of New York's Stony Brook campus, found that real rewards as opposed to hypothetical rewards made no significant difference in cooperation, although the social discounting function for real rewards was slightly steeper than for hypothetical rewards.

Figure 3: Mean crossover points, by treatment group



Source: Locey et al (2012: 21)

Figure 3: Mean crossover points, by treatment group



Note: Data for the fourteen participants who crossed over between A and B multiple times are included in the above analysis, with the first reported crossover being used as the crossover point.

Figure 2 shows the mean crossover points calculated across all seven social distances as well as the lower and upper confidence intervals for both the incentivized and non-incentivized groups. The aggregate average crossover mean for the payment group is R120.95 compared to the average cross over mean of the non-payment group, which is R96.21, a difference that is highly statistically significant ($p<0.001$). The difference moreover are statistically significant at all distances ($p<0.05$), except for distances 1 ($p=0.267$) and 2 (0.128), the most personal spaces on the social discounting spectrum, as well as distance 100 ($p=0.062$), the most anonymous dimension, where the differences are marginally

statistically significant. A comparison of the median crossover values reveals a similar trend. On aggregate terms the medians are statistically significantly different (p=0.001). Medians crossover points however only differ statistically significantly at distances 5 (p=0.092) and 10 (p=0.026). At other distances, the median crossover points do not differ significantly between the treatment (payment) and control (non-payment) groups.

4. Limitation

An important limitation of the study is that we only have a small sample size of 45 undergraduate students. In terms of further research, studies with larger samples are required to establish the extent to which incentivizing the Social Discounting Task (SDT) impact the social discounting function.

5. Conclusion

This is the second study testing whether incentivizing the social discounting task matters and therefore makes a methodological contribution with implications for further experimental research in the field. The result suggest that subjects paid in real money, contrary to expectations, are in fact more altruistic than subjects offered hypothetical pay-offs. There is weak evidence however that incentivising the social discounting task results in an upward shift of mean and median crossover points, particularly at intermediate social distances.

6. References

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Annexure 1: Social Discounting Task (SDT) instrument

NUMBER:	S	D	P		

SOCIAL DISCOUNTING TASK (continued)

Imagine you made a list of the 100 people closest to you in the world ranging from your dearest friend or relative at #1 to a mere acquaintance at #100.

Now imagine the following choices between an amount of money for you and an amount for person **#1** on the list. Circle A or B on the right hand side to indicate which option you would choose in EACH line.

	OPTION A:	OPTION B:	CIRCLE	
1.	R180 for you alone	R160 for person #1 on the list	A	B
2.	R160 for you alone	R160 for person #1 on the list	A	B
3.	R140 for you alone	R160 for person #1 on the list	A	B
4.	R120 for you alone	R160 for person #1 on the list	A	B
5.	R100 for you alone	R160 for person #1 on the list	A	B
6.	R80 for you alone	R160 for person #1 on the list	A	B
7.	R60 for you alone	R160 for person #1 on the list	A	B
8.	R40 for you alone	R160 for person #1 on the list	A	B
9.	R20 for you alone	R160 for person #1 on the list	A	B
10.	R0 for you alone	R160 for person #1 on the list	A	B

Row selected for payment:	
Option (A/B):	

Annexure 2: Payment Protocol

Social Discounting Task

(i) Subject rolls 8 sided-dice – if rolls 8, roll again until roll a number between 1 and 7 record result:

1	2	3	4	5	6	7

(ii) Record the relevant social distance:

1	2	5	10	20	50	100

(iii) Subject rolls 10-sided dice – record row:

1	2	3	4	5	6	7	8	9	10

(iv) Record the relevant chosen option (A/B):

A	B

(iii) Subject rolls 10-sided dice – record row:

R | | | |

(vi) If OPTION B is chosen, complete the nomination/payment form for the person at the relevant social distance