

The role of incentive structure in eliciting willingness to donate*

Carolyn Chisadza[†], Nicky Nicholls[‡], Eleni Yitbarek[§]

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Abstract

The monetary incentives provided to participants lie at the heart of controversies in experimental economics. In the literature, opinions differ about the required structure and importance of incentives. This study compares five incentive schemes for charity donation decisions in South Africa. We document similar findings to those in the literature when looking at mean decisions. Participants tend to donate more where endowments are hypothetical and have a lower payout probability. On the other hand, donations are lower where endowments are earned. We generate the earned endowment effect simply by framing part of the survey questionnaire as a “paid task”, suggesting an innovative way of framing earnings in experiments without the onerous requirement of earning tasks. Finally, we note material gender differences by incentive scheme, which might have an important implication for our knowledge of gender differences in charitable giving.

Key words: Incentives; Dictator game; Charitable giving

JEL classification: D90; D64; C90

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[†]University of Pretoria

[‡]Corresponding Author: Nicky Nicholls, Department of Economics, Tukkiewerf Building, University of Pretoria, Lynnwood Road, Pretoria, 0002, RSA, phone: +27 12 420 4505, email: nicky.nicholls@up.ac.za

[§]University of Pretoria

1 Introduction

Despite a significant literature pointing to the importance of paid incentives to elicit preferences, the debate around incentives in experimental economics remains unresolved. Research practices range from the use of purely hypothetical decisions, to having participants first earn the money they will later use for the donation decision. Earning tasks relate to the concept of mental accounting, where decisions using “windfall” money (such as endowments paid by experimenters) likely differ systematically from those using earned money (e.g. [Li et al. 2019](#)). Resistance to paid incentives (particularly those first requiring an earning task) stems largely from the financial and practical challenges of using incentive compatible tasks with large samples of respondents. Many researchers have responded to the financial challenges of incentive payments by paying only a proportion of (randomly selected) participants; or by varying the stakes, where respondents make decisions with very small monetary incentives.

Previous research has compared different types of incentive schemes in isolation. For example, [Carlsson et al. \(2013\)](#) and [Li et al. \(2019\)](#) compare earned to unearned incentives, noting lower donations where incentives are earned. Other researchers compare high to low stakes, where two meta-analyses note overall small decreases in dictator game offers as stake size increases ([Engel 2011](#); [Larney et al. 2019](#)). Finally, [Charness et al. \(2016\)](#) summarises literature comparing payments to a subset of decision makers to payments where all are paid. No significant differences are noted here. [Clot et al. \(2018\)](#) also compares paying all participants and paying only 10% of participants; including high and low stakes for the 10% condition.

Given the increasing use of experimental research for policy decision making, an accurate understanding of the type of incentives needed to elicit true preferences is essential. We follow the literature in using Dictator games to study charitable giving, where the charity replaces the receiver. We compare 5 different incentive schemes: paying all respondents; paying all respondents with earned endowments; paying only 10% of respondents; paying only 10% of respondents while quintupling the stakes; and hypothetical incentives. We

largely confirm the typical mean differences seen in the literature. **However, we note one difference from the literature: while paying a subset of respondents has previously been reported not to change results relative to paying all respondents, we find significantly higher mean donations where the likelihood of payment is reduced from 100% to 10%.**

To avoid introducing confounding differences in our questionnaire, all respondents answered a series of additional questions for which our earned incentive group received their payment. **This money earning task was the first part of the survey so that respondents in the earned incentive group would have earned their endowment prior to making their donation decision.**¹ The only difference between groups was that the earned group was told that they would be paid for answering these questions.² By testing whether this simple framing change drives differences in perceptions of an incentive as earned versus windfall money, we contribute to the literature on earned incentives. This was found to be the case: this simple positioning change generated the typical earned versus windfall money effect in our data.

In addition to comparing mean contribution decisions across incentive schemes, we also investigate whether altering the incentive scheme shifts preferences consistently across respondents (in which case questions around, for example, demographic differences could be answered equally well with any incentive scheme); or whether changes to the incentive scheme result in less predictable impacts on preferences. Several of the existing papers that compare the mean decision by incentive type fail to account for demographic variation within these decisions,³ highlighting this as an important avenue to explore. For one of the typical research

¹This was followed by the donation decision and related questions. A short question series from a separate study followed these questions. The questionnaire ended with demographic questions.

²This was done by including the text “as part of the survey, you will be asked to complete an extra questionnaire. You will be paid R100 for completing this extra questionnaire” in the informed consent statement; as well as prefacing the question series with, “This is the part of the survey where you will be paid to complete a short questionnaire. The questionnaire consists of 6 questions, and you will be paid R100 for completing it.”

³For example, [Umer \(2020\)](#) finds that while men condition their giving on whether income is earned, women do not; while [Barr et al. \(2015\)](#) notes income differences in responses to earned versus unearned income.

questions we considered (gender differences in giving), we find that researchers' conclusions would differ materially based on the incentive scheme used. This points to the importance of further research into incentive schemes, particularly the commonly used payment of a subset of respondents.

2 Method

2.1 Participants

A sample of 1028 South African residents participated in an online experiment, where participants made a decision about how much of an endowment to contribute to a charity. Our sample demographics are similar to country demographic splits for race and gender. However, the online data collection approach means that older respondents are slightly underrepresented, while younger respondents, respondents with post high school qualifications and higher income respondents are over-represented.⁴ The sample demographics and the corresponding national demographic details, where available, are detailed in Table 1.⁵

⁴Given concerns about subject attention in online data collection, one of our screening questions was an attention check question, where respondents who did not read the question properly were unlikely to answer correctly. Participants who did not answer this question correctly were terminated from the survey. As a second attention check, respondents were asked an age range in the screening questions, and a specific age question with the demographic questions at the end of the survey. Any respondents whose age did not fall in the age range indicated at the start of the survey were dropped from our data set (n=16 out of those who passed the attention check).

⁵Gender, race and age statistics are from Statistics South Africa; education statistics are from www.dhet.gov.za. Mean monthly household income in South Africa is estimated as approximately ZAR 14,524 (adjusted for inflation from Statistics South Africa Living Conditions Survey, 2015).

Table 1 – Sample and country demographics

	Sample (%)	South Africa (%)
Gender		
Female	52%	51%
Male	48%	49%
Race		
Black	76%	81%
White	11%	8%
Other	12%	11%
Age		
Under 25	25%	18%
25-44	48%	49%
45 and over	27%	33%
Household income		
Under ZAR4000 per month	13%	
ZAR4,000 to ZAR9,999 per month	23%	
ZAR10,000 to ZAR19,999 per month	28%	
ZAR20,000+ per month	35%	
Education		
Incomplete high school	4%	38%
Finished high school	31%	33%
Degree/Diploma	65%	12%

2.2 Experiment

At the start of the survey, respondents were randomly directed into one of our five incentive schemes for payment.⁶ These incentive schemes were: paying all respondents windfall endowments (Group 1); paying all respondents with earned endowments (Group 2); paying only 10% of respondents (Group 3); paying only 10% of respondents while quintupling the stakes (Group 4); and hypothetical incentives (Group 5).⁷ The main question of interest is the donation decision: respondents had to decide on an amount of money that they wanted to donate to the Solidarity Fund (a South African public benefit initiative that was set up

⁶To avoid biasing decisions, respondents were not made aware of our intention to compare different payment schemes. They simply had the incentive structure of their payment scheme explained in the informed consent statement at the start of the survey.

⁷For 4 of the incentive groups, decisions are made with ZAR 100 (equivalent to an hour’s pay for a post-graduate student assistant). The quintupled incentive decision therefore uses ZAR 500.

to help with South Africa’s response to the Covid-19 crisis, and was then repurposed to respond to other disaster responses). Any money that was contributed would be doubled. Examples, with higher and lower donations, were included in the donation question to explain the payments resulting from possible decisions. Respondents would receive the balance of the endowment. Contributions are compared under the different incentive conditions to see whether the incentive structure impacts willingness to donate.

Table 2 shows the distribution of the different incentive groups by age, income and gender. The random assignment resulted in well-balanced groups on these dimensions.⁸

Table 2 – Demographic comparison by incentive scheme

Columns by: Group	All paid (1)	Earned (2)	Pay 10% (3)	High stake pay 10% (4)	Hypothetical (5)	Total	P-value
n (%)	198 (19.3)	220 (21.4)	192 (18.7)	209 (20.3)	209 (20.3)	1028 (100.0)	
Age, mean (sd)	35.702 (13.136)	35.995 (12.732)	36.354 (12.754)	35.421 (12.417)	36.627 (13.340)	36.018 (12.860)	0.88
Income cat, mean (sd)	10.712 (4.710)	10.532 (4.693)	10.740 (4.667)	10.684 (4.317)	10.321 (4.766)	10.593 (4.626)	0.88
Gender							
Female, n (%)	99 (50.0)	117 (53.2)	98 (51.0)	105 (50.2)	117 (56.0)	536 (52.1)	
Male, n (%)	99 (50.0)	103 (46.8)	94 (49.0)	104 (49.8)	92 (44.0)	492 (47.9)	0.72

3 Estimation strategy

We use OLS to estimate the impact of incentive scheme on donation decisions as follows:

$$donation_i = \alpha_0 + \beta_1 incentive + \gamma \mathbf{X} + \delta \mathbf{Y} + \epsilon \quad (1)$$

where $donation_i$ is the proportion of the endowment donated by individual i ; $incentive$ is the incentive scheme to which individual i was assigned. \mathbf{X} is a vector of control variables for willingness to donate⁹; and \mathbf{Y} includes demographic variables for individual i .

After investigating differences in average contribution by incentive scheme, we then con-

⁸Although not a main variable of interest, race was less well balanced by group. We account for this by controlling for race in our regression analysis.

⁹Willingness to donate to Solidarity Fund, perceptions of whether the Solidarity Fund is still necessary and frequency of donating to charities.

sider whether these differences would impact the findings from typical hypotheses tested with charity dictator games. That is, we investigate whether the same (directional) conclusions would be reached with different incentive schemes. The questions we consider here are:

1. Do women donate more than men?
2. Does donation amount vary with income, age or stated willingness to donate?

4 Results

Table 3 shows our main result, where all groups are compared to group 1: all paid, wind-fall endowment. In line with existing literature, earned incentives lead to lower donation amounts. Recall that our earnings task was simply positioned as a paid task to the earned group, although all respondents completed the task. This suggests that a simple framing can generate an earned incentive effect. Also in line with existing literature, more money is donated where payments are hypothetical. Contrary to the literature, paying only some respondents in our study did impact mean donation amount: this was higher where the likelihood of payment was reduced. This was true with the higher stake payment too. The regression results in Table 4 are consistent with these findings.

Table 3 – Donation amount by incentive type

	n	Mean (s.d.)	Sig vs. all paid (rank sum z)
All paid (1)	198	41.33 (28.07)	
Earned (2)	220	27.07 (27.79)	-5.95***
Pay 10% (3)	192	48.37 (28.88)	2.47**
5x Pay 10% (4)	209	51.06 (28.65)	3.48***
Hypothetical (5)	209	50.15 (25.56)	3.58***

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.010$

Table 4 – Regressions testing the impact of incentive scheme

	(1)	(2)	(3)
Incentive schemes[†]			
Earned	-14.26*** (2.737)	-11.36*** (2.623)	-11.39*** (2.527)
All paid	-7.042** (2.885)	-6.980** (2.746)	-6.020** (2.717)
Hypothetical	1.779 (2.733)	3.140 (2.606)	4.098 (2.572)
High stake	2.694 (2.876)	1.422 (2.695)	2.245 (2.664)
Willingness		3.474*** (0.411)	3.513*** (0.410)
SF still needed		0.0338 (1.060)	0.407 (1.083)
Donation freq		1.195 (0.851)	0.478 (0.849)
Male			4.192** (1.625)
Black			-6.100*** (2.350)
Income (ordinal)			0.472*** (0.172)
Age			0.202*** (0.0724)
Constant	48.37*** (2.084)	19.30*** (4.490)	8.813 (5.820)
N	1028	1028	1028
Adj. R-sq	0.095	0.195	0.232

Standard errors in parentheses

* p<0.10; ** p<0.05; *** p<0.010

†Reference group: 10% of respondents paid (group 3)

Finally, we consider two common research questions: gender differences in donating (Table 5) and correlations between donating and income, age and stated willingness to donate (Table 6). While the magnitude of correlations in Table 6 varies (sometimes significantly) with the incentive scheme, we note that all correlations are directionally similar, regardless of the incentive scheme used. However, conclusions around gender differences in charitable giving would be materially different under different incentive schemes. **We find that men increased their contributions more than women did when stakes were high or hypothetical; and that women reduced contributions more than men did when endowments were earned.**

Table 5 – Gender differences in giving by incentive type

	Men		Women		Rank sum z
	n	Given amount (sd)	n	Given amount (sd)	
All paid	99	41.21 (30.22)	99	41.44 (25.90)	0.5
Earned	103	30.90 (29.98)	117	23.70 (25.36)	-1.78*
Pay 10%	94	47.29 (31.35)	98	49.41 (26.42)	0.71
High stakes pay 10%	104	55.32 (30.08)	105	46.85 (26.65)	-2.01**
Hypothetical	92	55.55 (24.98)	117	45.90 (25.32)	-3.07***

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.010$

Table 6 – Correlations with donation amount

	Income	Age	Willingness to donate
All paid	0.19***	0.12*	0.29***
Earned	0.08	0.28***	0.39***
Pay 10%	0.06	0.18**	0.34***
High stakes pay 10%	0.12*	0.10	0.38***
Hypothetical	0.12*	0.13*	0.27***

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.010$

5 Discussion

Our research contributes to the debate in the literature around incentive payment schemes. We compare five different incentive schemes for charity donation decisions, and note similar findings to those in the literature when looking at mean decisions: people donate more where endowments are hypothetical; and less where endowments are earned. We also note that reduced likelihood of payment is associated with higher donation amounts. **This contradicts existing literature, where the dominant finding is of no significant difference to behaviour where only a subset of the sample is paid. Our results suggest the need for further investigation: if our result of contributions varying with likelihood of payment is replicated in other research, future research designs considering charitable giving would need to take this into account.**

Interestingly, we note that the earned endowment effect is generated in our data with a very simple framing of part of our questionnaire as a “paid task”. This could be a useful way of introducing earnings to surveys, without the onerous requirement of a more significant earnings task. Finally, we investigate whether the incentive type would alter the conclusions drawn by researchers. Although we find that conclusions regarding associations between donating and income, age and stated willingness to donate are directionally similar across incentive schemes, we note material differences by incentive scheme for the conclusions that would be drawn about gender differences in donating. While our paper by no means settles the debate around the use of incentives, some of our findings highlight the need for further research in this area: if incentive structures materially change research conclusions, we cannot ignore their importance. **Future research might explore further the gender (and perhaps also other demographic) differences in responsiveness to changes in the incentive scheme. In addition, the impact of reducing payment likelihood needs to be investigated further as this could impact our interpretation of existing research on donation decisions where uncertain payment incentive schemes are used.**

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