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Pricing Aid: Evaluating Elicitation Methods for Valuations of Aid Interventions

Nicholas Owsley, Senior Research Specialist



1. Introduction

2. Literature

3. Experimental Design

4. Analysis

5. Preliminary Results

6. Limitations and Conclusions

Nicholas Owsley

Senior Research Specialist



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Background

This paper is part of a larger overarching study to determine recipient valuations of different aid interventions, correlates of valuations, and differential effects of cash and aid program interventions on a range of outcomes. One paper has been published and can be found [here](#) (Shapiro, 2019).



Background

This specific paper measures the relative reliability of different techniques in eliciting valuations of aid interventions.



Study Outline

- The study was run in Kenya, between 2015 and XXXX, in 3 counties:
 - Nairobi
 - Nakuru
 - Makeni
- Sample: 806 potential aid recipients at baseline; 793 at follow-up
- 5 elicitation technique variations were randomly assigned, including the Becker-DeGroot-Marschak (BDM) method, Multiple Price List, and a Hypothetical
- We evaluated indifference point for 18 different specific aid interventions.
- Delivered program contingent on TIOLI offer decision at follow-up
- Outcomes: i) valuation magnitudes, ii) consistency between valuation and choice



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Literature

- Extensive literature on value elicitation in field experiments using different methods, including those in this study
 - contingent valuation,
 - Becker-DeGroot-Marschak (BDM) lotteries,
 - multiple price lists (MPL)
 - take-it-or-leave-it offers (TIOLI).



Literature

- Fairly extensively used to measure valuations of common development aid interventions.
 - Altaf & Hughes (1994), Singh
 - et al (1993), Bohm, Essenburg & Fox (1993), Whittington et al (1992), Swallow & Woudyalew
 - (1994), Kremer, Leino, Miguel & Zwane (2011), Berry, Fischer & Guiteras (2015), Homan,
 - Barrett & Just (2009), Cole & Fernando (2016), Cole, Stein & Tobacman (2014), Cole, Gine
 - & Vickery (2013), Guiteras et al (2016), Guiteras, Levine, Polley, Quistor (2016)).



Literature

- There is an equally rich literature on how biases and contextual factors may affect stated valuations
 - (e.g., Singh et al (1993), Bohm, Essenburg & Fox (1993), Whittington et al (1992), Guiteras,
 - Levine, Polley, Quistor (2016), Bohm, Linden & Sonnegard (1997)
 - De Meza & Reyniers (2013)
 - Ariely, Loewenstein and Prelec (2003)
 - Mazar, Koszegi and Ariely (2009)



Our Contribution

- Comparing the reliability of alternative value elicitation techniques for valuations of development aid interventions - by actually providing aid interventions contingent on choice, our measures are incentive compatible.
- Applying valuations for a range of the most common interventions within a development aid space.



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Program Selection



Location and Sample Selection



Elicitation Methods

Treatment Groups:

Treatment 1: Hypothetical Question (H; N=136)

Treatment 2: Multiple Price List (MPL; N=117)

Treatment 3: BDM with example (BDMe; N=142)

Treatment 4: BDM on Faith (BDMf; N=133)

Treatment 3a+4a: Certain Program (c; N=265)

Cross-randomized with 3 (N=142) and 4 (N=123)



Follow-up

- Measure reliability of valuation method
- Cash offers made around the initially stated indifference point
- For feasibility reasons, a subset of interventions were randomly chosen
- Respondents could then either accept or reject the cash offer
- These 793 respondents then received either the program ($N = 155$) or the cash offer amount ($N = 638$), depending on their choice at follow-up.
- Both cash and the program were to be delivered on the same future date irrespective of choice.



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Key Outcomes

- *Consistent*
 - Binary outcome
 - Depends on predicted choice given cash offer and indifference point
 - If respondent receives an offer greater than indifference point, if they accept cash offer, Consistent=1, 0 otherwise
 - If respondent receives an offer lower than indifference point, if they reject cash for program, Consistent=1, 0 otherwise
- *Valuation*
 - Normalized per intervention
 - Valuation as a ratio of cost of intervention (Valuation/Intervention Cost)



Specifications

Primary Specification

$$Y_i = \alpha_p + \beta_1 BDM e_i + \beta_2 BDM f_i + \beta_3 MPL_i + \beta_4 c_i + \varepsilon_i \quad (1)$$

No ‘Certainty’ Treatment

$$Y_i = \alpha_p + \beta_1 BDM e_i + \beta_2 BDM f_i + \beta_3 MPL_i + \varepsilon_i \quad (2)$$

Controls Included

$$Y_i = \alpha_p + \beta_1 BDM e_i + \beta_2 BDM f_i + \beta_3 MPL_i + \beta_j X_{ji} + \varepsilon_i \quad (3)$$



Additional Analysis

- Subgroup analysis for valuation + looking at specific controls for this group.
- Incremental changes in offer (hypothetical).
 - Relative to offer price
 - 105%, 110%, 130%, 150% for those selecting program
 - 95%, 90%, 70%, 50% for those selecting cash



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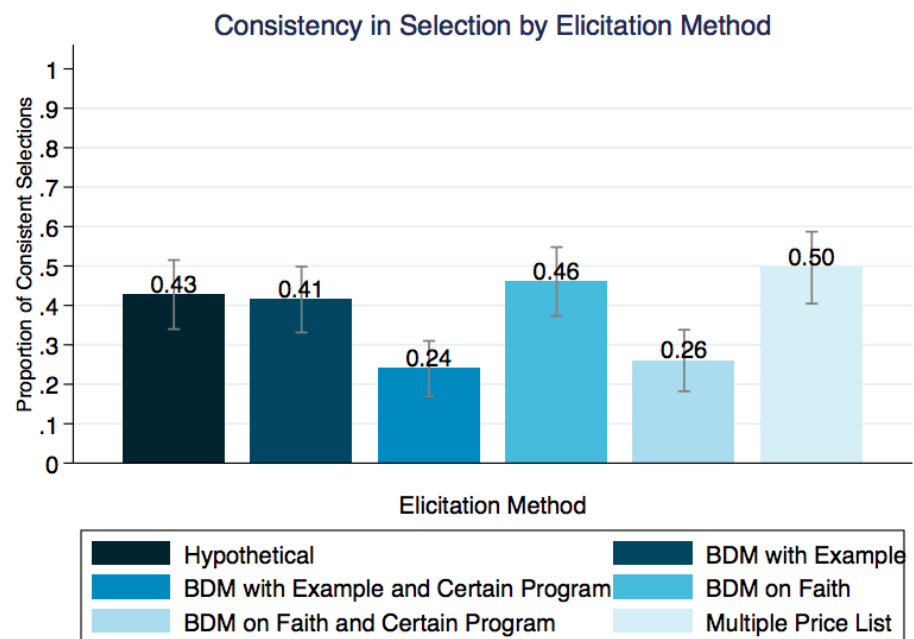
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Consistency

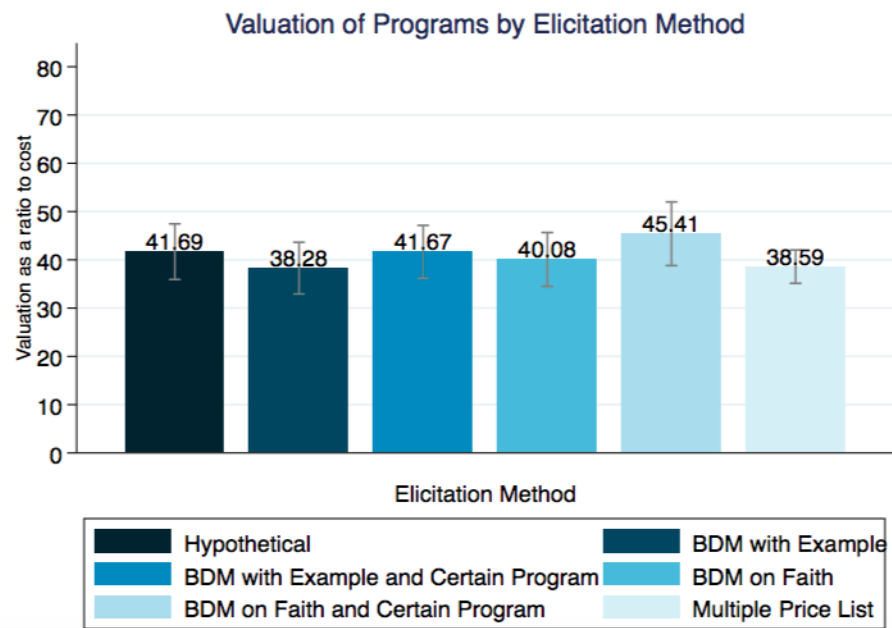


Consistency

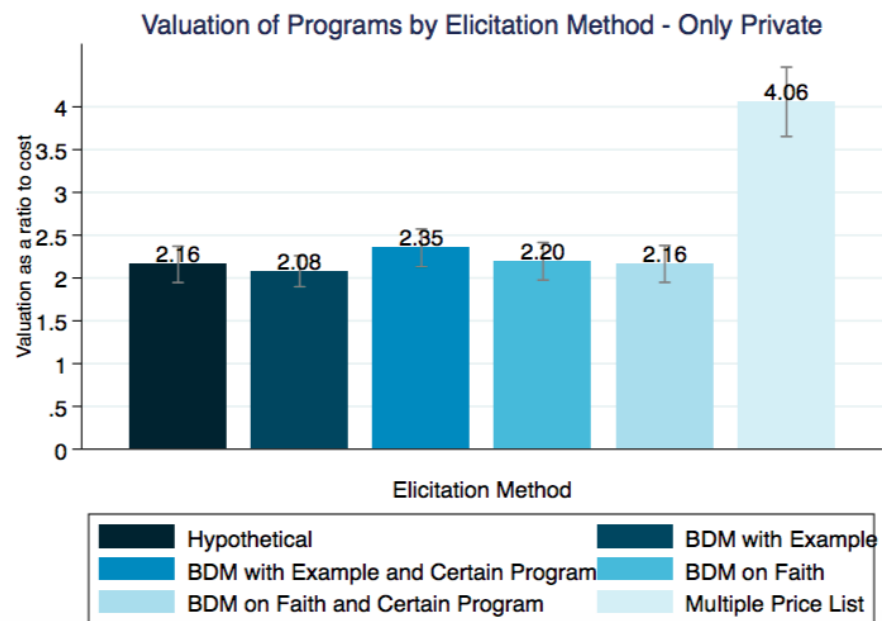
| Variables | All | No Certainty | No Certainty + Controls |
|--------------------------------|-----------------------|---------------------|----------------------------------|
| Multiple Price List | 0.068 (1.112) | 0.068 (1.064) | 0.050 (0.771) |
| BDM with Example | -0.007 (-0.118) | -0.013 (-0.203) | -0.007 (-0.110) |
| BDM on Faith | 0.026 (0.470) | 0.033 (0.522) | 0.028 (0.434) |
| Certain Payoff | -0.187*** (-4.499) | | |
| Constant | 0.427*** (9.983) | 0.427*** (9.551) | 0.551*** (6.288) |
| Certainty Treatment Conditions | Yes | No | No |
| Controls | No | No | Yes |
| Observations | 767 | 502 | 502 |

t-statistics in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Valuation



Valuation



Valuation

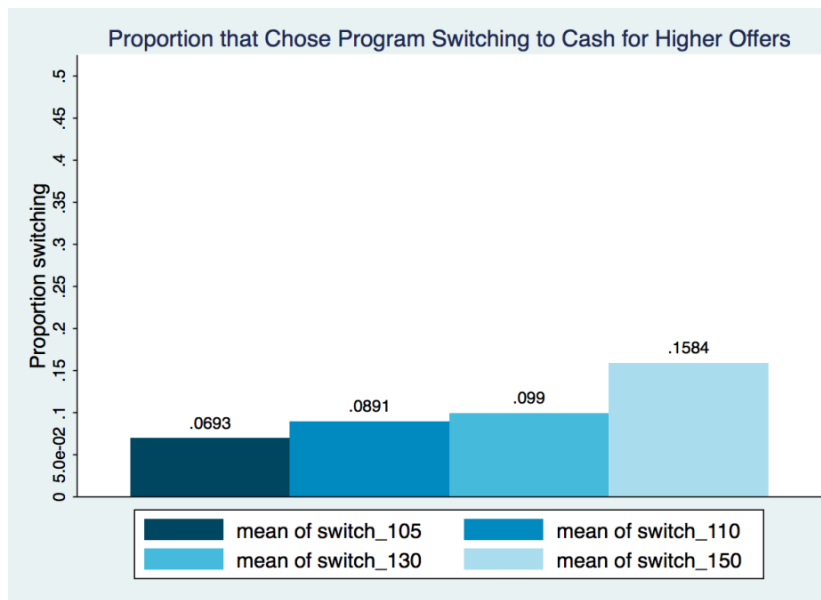
| Variables | All | No Certainty | No Certainty + Intervention Control | No Certainty + All Control | No Certainty - 'Only Private' |
|--------------------------------|-----------------------|-----------------------|---|-------------------------------|----------------------------------|
| Multiple Price List | -2.301 (-0.656) | -3.101 (-0.812) | -1.632 (-0.560) | -1.296 (-0.442) | 1.900*** (9.938) |
| BDM with Example | -2.605 (-0.783) | -3.405 (-0.928) | -2.887 (-1.030) | -2.895 (-1.032) | -0.080 (-0.434) |
| BDM on Faith | -1.119 (-0.305) | -1.614 (-0.431) | -1.549 (-0.542) | -1.210 (-0.422) | 0.037 (0.195) |
| Certain Payoff | 4.302 (1.554) | | | | |
| Constant | 40.890*** (20.794) | 41.690*** (15.824) | 9.667** (2.201) | 12.452** (2.535) | 2.159*** (16.363) |
| Certainty Treatment Conditions | Yes | No | No | No | No |
| Controls for Interventions | No | No | Yes | Yes | No |
| Additional Controls | No | No | No | Yes | No |
| Public' Interventions | Yes | Yes | Yes | Yes | No |
| Observations | 12,572 | 8,408 | 8,408 | 8,408 | 4,052 |

t-statistics in parentheses; *** p<0.01, ** p<0.05, * p<0.1

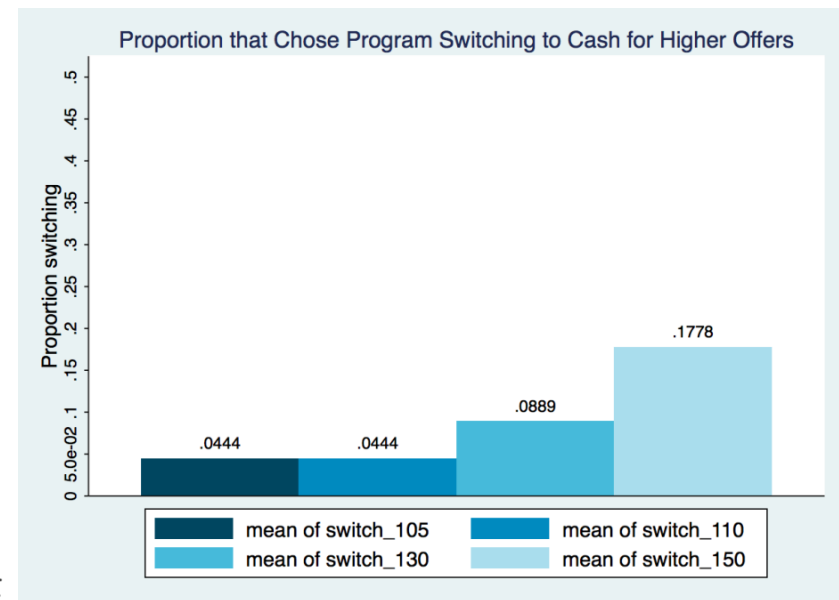


Insensitivity to Change - Choosing Program

Consistent Choice at Initial Offer

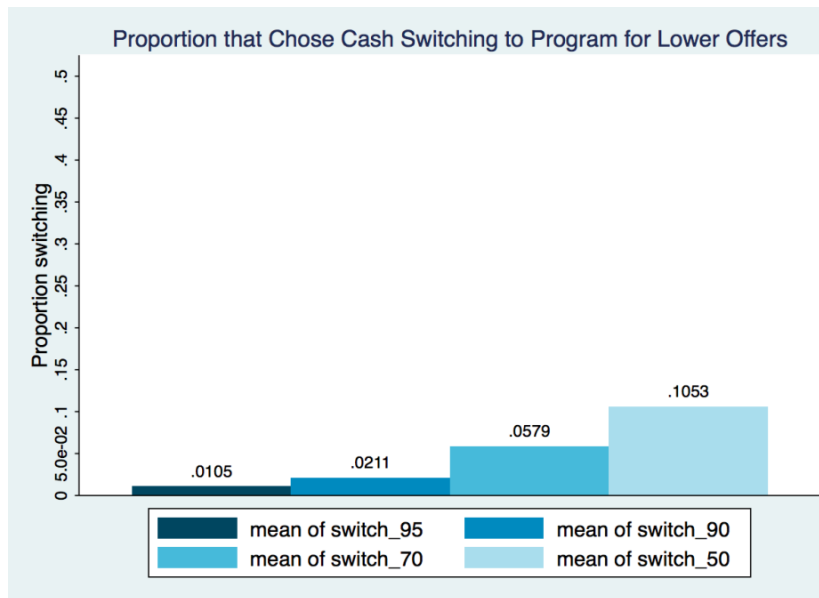


Inconsistent Choice at Initial Offer

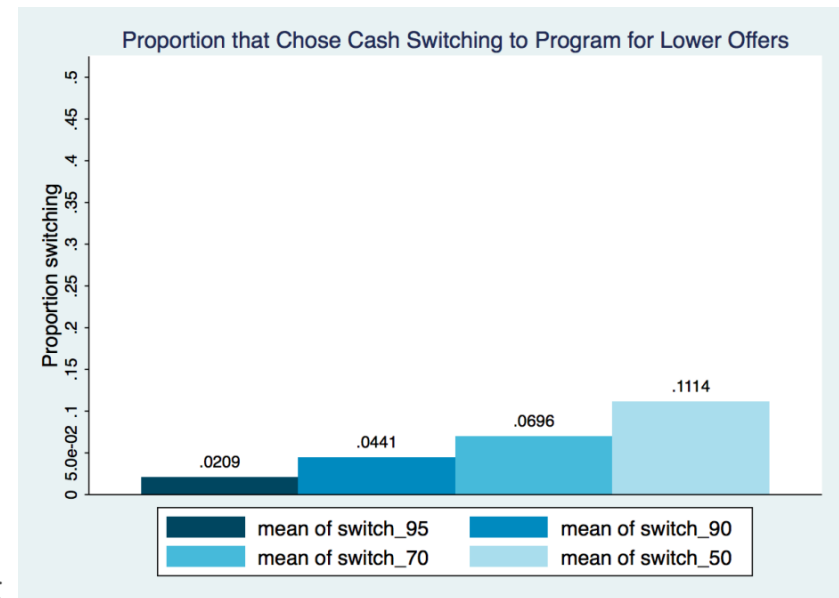


Insensitivity to Change - Choosing Cash

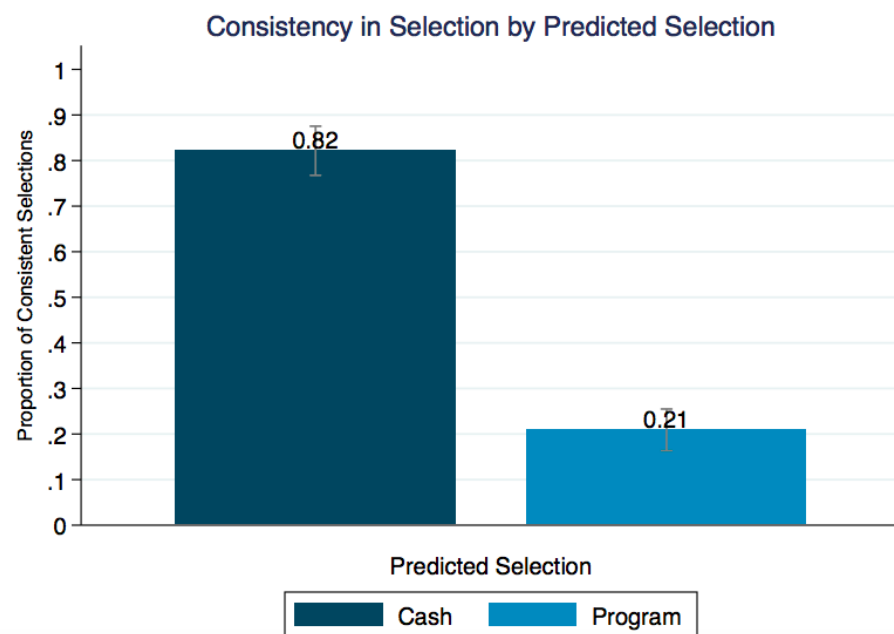
Consistent Choice at Initial Offer



Inconsistent Choice at Initial Offer



Differences in consistency by predicted choice



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Limitations

- Power
- Certainty treatment



Conclusions

- Incentive compatible elicitation methods do not perform meaningfully better than posing a hypothetical question
- Final choices are insensitive to incremental changes in price, even when these are substantially different from initial indifference points. Preliminary evidence suggests that choice conditional on price offer is far more predictive than indifference point.
- Cash is king. Inconsistency is far more likely in favour of cash, and far less likely when cash is predicted. All elicitation methods used generate overstated valuations on average.

