

THE IMPACT OF RECIPIENT CHOICE ON AID EFFECTIVENESS*

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Abstract

This study compares the impact of several common development programs (agricultural extension, subsidized agricultural inputs and livestock transfers) to cash transfers equal to the cost of each program. Prior to program delivery, recipients were asked their valuation of each program (i.e., their cash indifference point between cash and the program) as a proxy for their preference between cash and the program. Subsequently, recipients were randomly assigned to receive cash or a program. I do not find any impact of incorporating recipient preferences in aid allocation on consumption, food security, assets, psychological well-being or feelings of autonomy, and can rule out effects of any meaningful size. When comparing cash transfers directly to common development programs, the point estimates indicate no difference in impacts and confidence intervals rule out large differences. I do find that cash transfers increase feelings of autonomy and respect compared to non-cash interventions.

JEL Codes: O12, O22, I30, I38

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1 Introduction

In the past three decades, cash transfer programs have spread across countries and continents to reach an estimated 700 million people (Evans, 2017). These programs serve a variety of goals, including increasing human capital, providing emergency assistance and furnishing a general social safety net. The rise of cash transfer programs has been driven by a combination of philosophical beliefs, political economics and the perception that cash transfers are attractive from a cost-benefit perspective. In an important respect, cash transfers represent a monumental change in the philosophy of aid. Whereas aid has historically focused on meeting needs of the poor as perceived by the aid community, cash transfers enable aid recipients to meet needs as perceived by themselves. This change belatedly mirrors a shift in the theoretical and philosophical underpinnings of international aid: from paternalistic colonial origins to the “poor but efficient” view, pioneered by Schultz (Schultz et al. (1964), Ball and Pounder (1996)) and the belief that the poor rationally optimize their decisions according to neoclassical economic concepts. The Schultzian view predicts that cash transfers will significantly improve the situation of poor recipients by relaxing resource constraints, while the paternalistic view predicts that resources will be misused and squandered. Development economists in particular have focused on evaluating the impacts of cash transfers. The literature shows that transfers do not result in unwanted impacts such as increased spending on alcohol or tobacco (Evans and Popova, 2017) and reduced labor supply (Izmalkov, 2004), and that cash transfers have positive impacts on a wide variety of welfare indicators, such as consumption, assets and educational status. The literature has firmly established that cash transfers have significant benefits and limited costs (Bastagli et al., 2016), partially legitimizing the poor but efficient hypothesis.

In recent years, however, emerging research has implicitly supported another rationale for restricting recipient’s use of aid money: not that the poor are intrinsically different from the rich, but that they are equally irrational as the rich, and that the condition of poverty may augment the negative effects

of irrational decisions (Bertrand et al. (2004), Mani et al. (2013), Bernheim et al. (2015)). This behavioral economics view has spawned a new class of behaviorally informed development interventions (e.g., Duflo et al. (2011), Duflo and Hanna (2005), Ashraf et al. (2006)) but it has not apparently dampened the enthusiasm of the aid industry for cash transfers. The mutual existence of these approaches to aid creates a tension between the behavioralist and Schultzian view: are development outcomes best achieved by enabling aid recipients to optimize according to their unique information and constraints? Or is it better for the aid industry to implicitly or explicitly influence the decisions of recipients and the use of aid resources?

This study addresses this question empirically by assessing whether individuals who express a high valuation for a particular assistance program benefit more from that program than similar individuals who receive an equally valuable resource. Through a randomized controlled trial, low-income Kenyans were selected to receive either a particular non-cash development program (agricultural extension, agricultural inputs, livestock transfers) or an amount of cash equal to the cost of the program. Prior to receiving any intervention, we elicited respondents' indifference point between cash and the program in question. Subsequently, we randomly assigned individuals to receive the program in question or a cash transfer equal to the cost of the program. This design allows us to assess whether recipients' preferences for specific programs, measured by their valuation for particular programs, increases the beneficial impacts of such programs, as would be expected according to the poor but efficient hypotheses. Further, by comparing cash transfers directly to various alternative interventions, we can assess whether constraining the choices of aid recipients to "spend" the resources on common development interventions outperforms simple transfers, as might be expected according to the behavioral view.

I do not find any appreciable impact of incorporating respondent preferences in aid allocation. Utilizing a variety of measures of recipient preference, there is no discernible relationship between whether a recipient receives their preferred intervention (a program or cash) and components of well-being in-

cluding consumption, food security, assets, psychological well-being and feelings of autonomy. When comparing cash transfers equal to the cost of common poverty reduction programs to the programs themselves, on average and irrespective of the recipient's preference for cash or the program, I can rule out large differences in impacts on economic outcomes. Based on 95% confidence intervals, cash transfer recipients consume no more than ~4.25 USD more per person per month (~10% of mean consumption) than program recipients and score no higher than 0.07 standard deviations on an index of food security than program recipients. Program recipients have no more than ~\$25 USD (8% of mean assets) than cash transfer recipients. Regardless of recipients' valuation of or preferences for specific interventions, I do find that cash transfers increase feelings of autonomy and produce more favorable views of the implementing organization than non-cash interventions. Cash transfer recipients score 0.13 standard deviations (CI = 0.05 to 0.20 standard deviations) on an index of autonomy related questions. They are more likely to believe they are trusted by the implementing NGO, that the aid they received was tailored to their needs and that they were treated as an individual.

In sum it does not appear that involving recipients in the decision of how to allocate aid dollars between cash and the programs studied here improves the impact of aid resources. Nor do the findings imply that constraining the choices of aid recipients by delivering goods and services directly results in dramatically improved returns on aid dollars. Simply providing cash, however, does appear to improve recipients' subjective experience of aid, without reducing the poverty reducing impact of such aid.

In addition to exploring the empirical implications of a rational / efficient view of poverty and a behavioral one, this study contributes to two additional branches of the literature: one contrasting cash transfers with other programs and the other exploring the relationship between preferences and outcomes. While, to my knowledge, there are no studies that evaluate whether incorporating recipient preferences in the allocation of resources alters the welfare impacts of aid spending, there is an emerging literature comparing cash transfers to alternative uses of aid dollars. Hidrobo et al. (2014) compare cash

transfers, food vouchers and in-kind food transfers in Ecuador, Uganda and Yemen, finding little impact of different modalities on food consumption overall but some impact on the composition of the basket consumed. Cunha (2014) finds similar results comparing cash to food transfers in Mexico. Other research contrasts studies evaluating the impacts of specific interventions with separate studies assessing the impact of cash transfers. Buera et al. (2016), for example, summarize the impacts of studies pertaining to cash transfers to micro-entrepreneurs, the impact of “graduation programs” targeting the very poor and micro-finance programs. Similarly a CGAP study compares studies evaluating the impacts of livelihood development programs, graduation programs and cash transfer programs (Sulaiman et al., 2016). Though illuminating, these studies are hindered by limited comparability across individual studies - each is conducted at separate times, in separate geographies using distinct measurement techniques and evaluating delivery by different implementing organizations. Thus it is difficult to make precise comparisons of the impact of cash transfers vs. alternative poverty reduction programs. This study provides a controlled comparison of cash transfers vs. several common aid programs.

Another strand of literature assesses how individual preferences, expressed by valuations, affects outcomes. This is relevant in that cash may be a more effective mode of resource delivery than alternative interventions because aid recipients have private information about what is most likely to reduce poverty. A farmer, for instance, may know her skill and whether subsidized inputs will be of any use. Jack (2013), for example, shows that that landholders induced to reveal their private valuation for a tree-growing contract are more likely to produce surviving trees than randomly selected landholders. Similarly, Berry et al. (2015) show that individuals with high willingness to pay for water filters experience greater benefits from acquisition of the filter. This study extends prior research by holding the value of the intervention received constant, while varying whether the individual receives their most valued intervention or not.

2 Study design

2.1 Location selection

Our goal in location selection was to identify a low-income Kenyan population, who either receive or are similar to recipients of aid. Beginning with a list of Kenyan counties, we filtered all counties with less than a 40% poverty rate, or just below the national rate of 46% (World Bank, 2015). Due to logistical considerations, we then filtered out counties with household density below the 33rd percentile. Remaining counties were then prioritized based on further proxies for poverty (fertilizer use, HIV, diarrhea and malaria prevalence, bed net use and secondary school enrollment rates). All data used comes from Kenya Open Data.¹ Ultimately, we chose to work in Makueni county, specifically in the regions of Mbooni and Kilungu.

2.2 Program selection

Our aim in program selection was not to identify the “most important” aid program, but to assess whether recipient preferences are associated with outcomes across a variety of common large-scale aid programs. Detailed aid spending by specific program (e.g., agricultural extension, vaccinations) is rare, disbursed and incomplete. Thus we took a multi-step process to select programs for this study. First, we identified entities primarily responsible for funding and/or delivery of development programs in Kenya, specifically the Government of Kenya, official development assistance by multilateral and bilateral donors, philanthropic foundations and international non-governmental organization. For each of these entities we collected data on development program spending in Kenya and identified priority sectors based on the share of budget allocated to each sector. Based on this analysis, important sectors include: education, health, agriculture, water and sanitation, and humanitarian, emergency and disaster assistance (see Shapiro (2017) for details).

¹<https://opendata.go.ke/dataset/Kenya-Government-Funded-Projects-2015/ncdd-s55u> ; <https://opendata.go.ke/dataset/Kenya-Open-Budget-Program-Based-Budget-2015/5jh8-v7sc>

From these sectors, we chose to focus on agriculture for three reasons. First, a majority of the world’s poor live in rural areas where agriculture represents a significant part of the local economy. Second, because agricultural development spending is significant in Kenya (e.g., GoK spends more than \$700 million on agriculture programs). Third, in contrast to important sectors such as health and education, we expect to observe impacts of agricultural interventions within the time frame of this study.

Even within sector, it remains difficult to identify line-item expenditures or operational details for specific aid interventions. Aside from high level expenditure aggregates, detailed information on development activities is usually spelled out in project plans and reports (e.g., pertaining to the use of large scale ODA). We reviewed 8 such documents pertaining to large-scale agricultural programs (budget >\$5 million) in Kenya. Of these programs, the most commonly mentioned specific intervention was agricultural extension (in 6 of 8 programs). Several programs mentioned the provision of inputs to farmers, including water, soil inputs and capital. One prominent program (the Kenya Cereal Enhancement Programme) provides a package of inputs (seeds, fertilizer, pesticides, etc.) directly to farmers. Other specific programs mentioned are livelihood development and diversification, and market linkages. We thus chose to include extension, inputs and livelihood development (livestock) in the study. These programs are suitable for the study in that they can be replicated by an NGO, are likely to have short run impacts, and are relevant in the Kenyan context as well as globally as agricultural extension and fertilizer subsidies are common across the developing world.

Program details include:

1. Agricultural extension: we hired a team of 11 agriculture experts, with a combined experience of 66 years in the agricultural sector, to deliver in-person group training to randomly selected farming households. The training sessions ran from September to October 2016 - leading up to the “short rains” agricultural season in Kenya. The training included education on: land preparation, planting, soil fertility, crop selection, soil and water management, field management (fertilization, pest and dis-

ease management, weeding), record keeping and financial management, farmer group dynamics and conflict resolution, harvesting, post-harvest management, value addition and marketing.

2. Agricultural inputs: based on the advice of agricultural experts, we provided recipients with enough inputs to plant approximately 0.5 acres of cabbages or maize. The type of inputs to be provided were recommended by our agricultural consultants who determined the requirements based on terrain and crops grown in the study areas. Specifically, for the cabbage-growing region of Mbooni, we provided 50 grams of Baraka F1 seeds and 75 kilograms of planting fertilizer. For the maize-growing region of Kilungu, we provided 4 kg of Duma 43 seeds, 25 kg of planting fertilizer and 25 kg of top-dressing fertilizer. These inputs are roughly modeled after the Government of Kenya's National Accelerated Agriculture Inputs Access Program. The program includes a voucher, valued at USD 60 - 80, to cover the cost of 10 kg of hybrid maize seed, 50 kg of basal fertilizer, and 50 kg of top-dressing fertilizer, inputs sufficient for approximately 1 acre (0.4 ha) of maize. Our agricultural inputs package also included a one-time information session on proper input usage provided by our extension agents.
3. Livestock transfers: recipients received 25 one-month old chicks vaccinated for common diseases as well as a starter pack of feed (~10 kg). Recipients were also provided with basic information about taking care of their chicks by our team of agricultural experts and were visited occasionally by the agriculture team over the following 4 months.
4. Cash transfers: some households were randomly selected to receive direct cash transfers. The size of these transfers match the per-recipient cost of one of the above programs – \$15 for agricultural extension, \$75 for agricultural inputs in Mbooni and \$35 for agricultural inputs in Kilungu, and \$120 for livestock transfers. These transfers account for the direct value of items transferred as well overhead costs, however we ignore any implicit labor costs (e.g., labor that is complimentary to the program

delivered or the use of the cash). Cash transfers were delivered using the M-Pesa mobile money platform.

2.3 Baseline survey

Eligible individuals comprised those over 18 years of age residing in a home made of all or partially natural materials (e.g., wood, local stone or mud, excluding homes which include cement or cinder blocks) and with relatively small land holdings (less than 6 hectares). We surveyed 3,008 individuals meeting these criteria. Each respondent was administered a baseline survey that elicited their indifference point between cash and the relevant programs (agricultural extension, agricultural inputs or livestock transfer). We chose a valuation based approach to estimating whether a respondent prefers cash or the program, as opposed to a direct choice between the two. This choice was made as a valuation approach could potentially be extended to multiple interventions of various costs (if preferences matter, it may be wise to provide the program with the highest ratio of valuation to cost). The survey also measured a variety of baseline characteristics. The survey was administered on tablet computers using SurveyCTO software. The baseline survey was conducted from August 10th, 2016 to September 24th, 2016.

Data integrity was maintained through continuous monitoring of data coming into the server to check for missing observations and inconsistencies in responses, back check surveys to establish the reliability of data, GPS checks to establish the presence of a structure at the recorded interview site and random spot checks of interviews. .

2.4 Randomization

Study participants were randomly assigned to receive a particular non-cash program or a cash transfer equal to the cost of the program. As described above, the interventions differed by study location on account of agricultural characteristics. Study participants in Kilungu were randomly assigned to receive agricultural extension, a transfer of \$14, inputs for maize or a transfer of

\$35. Study participants in Mbooni were randomly assigned to receive agricultural inputs for cabbage, a transfer of \$75, 25 month-old chicks or a transfer of \$120. Randomization was conducted at the individual level. Though the informational components of extension may have spillover effects, individual randomization is a deliberate choice: the primary goal of this study is to compare across cash or program arms in order to isolate the effect of the choice mechanism. In equilibrium, were recipients to be given a choice between programs and cash transfers, I expect some would choose the program, thus having a mix of those receiving cash and the program in the same village provides the most relevant comparison.

2.5 Intervention implementation

For respondents receiving a non-cash intervention, the goods or services were delivered in person by an individual not involved in the initial data collection. At that visit, the respondent's name, ID number and location were verified. In the event of discrepancies, the program delivery was delayed until further investigation. For respondents receiving cash, a transfer was sent through the M-Pesa digital payment platform. This platform allowed the researchers to confirm the name from the survey matches the name associated with the mobile money account. Finally, we followed up with a sample of recipients (by phone or in person) to confirm receipt of goods, services or cash.

1. Agricultural extension: An agricultural training curriculum consisting of 6 sessions was developed by contracted agricultural consultants. These sessions were administered by our team of agriculture experts at a location convenient for the respondents to attend. Respondents randomly selected to receive this intervention were contacted via phone for identity verification and invited to attend training sessions at a nearby venue on specific dates. A few farmers who could not come to the training venue received training on their farms instead from one of our team members. Out of 500 respondents, 431 attended these training sessions.
2. Agricultural inputs: Inputs were procured from a well-known seed dis-

tributor in Nairobi and transported to the target areas by the supplier. Before the goods were disbursed, participants were contacted via phone and all identity and contact information provided at baseline was verified using a contact verification phone survey. After verification, respondents were contacted via phone and informed of the inputs collection point and were advised and encouraged to collect their inputs. 280 respondents in Mbooni and 179 in Kilungu collected their inputs, meaning 459 of 500 recipients collected the inputs.

3. Livestock transfers: The chicks were procured from a well-known seed and livestock distributor in Nairobi and transported to the target areas by the supplier. Before the goods were disbursed, respondents were contacted via phone and advised to construct suitable chicken coops in preparation for the storage of the birds. This call was made two weeks before the chicks were scheduled to be collected by the respondents. A week after the first preparation call, respondents were again contacted via phone and reminded to construct suitable chicken coops if they had not yet done so and advised on suitable storage conditions for the chicks. After the preparation reminder calls, respondents were contacted via phone and informed of a date and venue to collect the chicks. At collections, respondents were advised on basic upkeep and care. 489 out of 505 respondents showed up to collect their chicks. Agricultural trainers visited the chick recipients on a rotating basis to answer any queries and assist with care for the chicks.
4. Cash transfers: As cash transfers were to be implemented through M-Pesa, respondents' M-Pesa numbers were verified before the transfer was initiated. Additionally, the name of the respondent was matched with the name under which the M-Pesa account was registered before the transfer was initiated. All respondents scheduled to receive cash transfers were contacted on the phone to be informed of the impending transfer and the amount. Out of targeted respondents in each category, 491 respondents received the agricultural extension equivalent cash transfer,

483 received the agricultural inputs equivalent cash transfer, and 497 received the livestock equivalent cash transfer. The remaining respondents refused the cash transfer when contacted.

2.6 Endline survey and outcomes

The endline survey was conducted from April 6th, 2017 to June 10th, 2017, or approximately 6 months after the intervention. This timing was selected by our agricultural team, to coincide with the harvest time (allowing time for sale) and when chicks were sufficiently mature to sell. We chose this time horizon because it is when individuals receiving programs will reap the maximal benefit in terms of the outcomes considered here (e.g., consumption, food security, subjective well-being). Moreover, cash transfers have been shown to have measurable impacts at time-horizons as short as 6 to 9 months (Haushofer and Shapiro (2016), Blattman et al. (2013), Fafchamps et al. (2011)) thus we also expect to detect impacts of cash transfers at this time horizon.

Our primary outcomes of interest for this study are:

1. Consumption - total monthly per capita consumption, including the value of own production, in Kenyan shillings. Consumption is winsorized at the 99th percentile.
2. Food security - weighted standardized index.
3. Assets - total value of household assets, excluding land and buildings, in Kenyan shillings. Assets are winsorized at the 99th percentile and the 1st percentile (due to negative outliers occurring due to household debt).
4. Psychological well-being - weighted standardized index.
5. Autonomy, dignity, trust - weighted standardized index.

In constructing weighted standardized indices I follow Anderson (2008). For a group of related outcomes, I first calculate the co-variance matrix. I then invert the matrix and define weights for each variable as the row sums of

the inverted co-variance matrix. Related outcomes are then de-meanned and divided by the standard deviation of one treatment group (cash recipients). The index is constructed as the weighted sum of standardized outcomes, and is finally re-centered by the mean and standard deviation of the index for the cash recipient group. Details on the construction of these outcomes is discussed in the appendix. When estimating each of the equations below for these primary outcomes, I adjust p -values based on 5 outcomes of interest and report Family Wise Error Rate adjustments.

2.7 Design Summary

The figure below provides an overview of the study, including: baseline dates, number of respondents allocated to each treatment group at baseline, number of respondents actually receiving each treatment, number of respondents reached at endline.

	<i>Mbooni</i>		<i>Kilungu</i>	
Baseline Aug – Sept, 2016	N = 1,637		N = 1,371	
	Extension N = 500	\$14 N = 500	Livestock N = 505	\$120 N = 504
	Inputs N = 319	\$35 N = 318	Inputs N = 181	\$75 N = 181
Intervention delivery	Extension N = 431	\$14 N = 491	Livestock N = 489	\$120 N = 497
	Inputs N = 280	\$35 N = 305	Inputs N = 179	\$75 N = 176
	N = 1,573		N = 1,314	
Endline April – June, 2017	Extension N = 475	\$14 N = 486	Livestock N = 484	\$120 N = 483
	Inputs N = 305	\$35 N = 307	Inputs N = 176	\$75 N = 171

3 Results

The aim of this study is to understand whether recipient preferences over various aid programs impact outcomes, while holding the value of aid received constant. To minimize the chance that particular program characteristics drive results, we chose to implement three programs. In the analysis, we pool data across the three programs and use fixed effect to control for the aggregate value of the resources received by the recipient (whether cash or non-cash goods and services). Note the pooled sample remains balanced according to the (randomly determined) proportion who receive either cash or a program and whether an individual receives cash or a program is uncorrelated with sample

characteristics. This analysis is similar to Banerjee et al. (2015), who pool data from several related, but operationally distinct Graduation programs.

3.1 *Sample integrity*

Of the initial 3,008 respondents, we resurveyed 2,887 or a re-contact rate of 96%. Though small overall, we also confirm that attrition is not correlated with treatment status: attrition is 3.6% in the cash recipient group and 4.2% in the program recipient group ($p = 0.41$). In Table 1 I show the means of various baseline characteristics in the estimation (endline) sample by intervention group. The table confirms that treatment assignment is not correlated with observed baseline characteristics in the estimation sample, and thus should not be correlated with the error term in endline specifications. Further, the table indicates that differential attrition based on baseline covariates did not occur. Of 27 comparisons, we observe two differences significant at the 5% level and one difference significant at the 10% level.

Table 1: Baseline Balance across Extension, Inputs and Livestock Recipients at Endline

	(1)	(2)	p-value:	(3)	(4)	p-value:	(5)	(6)	p-value:
	Cash Extension	Extension	(1) = (2)	Cash Inputs	Inputs	(3) = (4)	Cash Livestock	Livestock	(5) = (6)
Age of respondent	44.397 (0.285)	43.288 (0.173)	0.267	43.567 (0.292)	44.420 (0.634)	0.377	43.598 (0.150)	43.370 (0.632)	0.517
Gender of respondent (dummy = 1 if female)	-0.022 (0.022)	0.032 (0.022)	0.033*	0.060 (0.022)	-0.007 (0.022)	0.094	0.022 (0.022)	-0.022 (0.022)	0.575
Psychological wellbeing index (CESD, GHQ-12, WVS)	31.432 (0.466)	31.878 (0.341)	0.590	0.060 (0.044)	0.045 (0.055)	0.287	0.066 (0.066)	0.038 (0.047)	0.202
Geoth mindset	3.831 (0.343)	3.410 (0.023)	0.911	32.745 (0.350)	31.927 (0.255)	0.101	32.290 (0.349)	32.345 (0.337)	0.816
Gift	2.765 (0.295)	2.993 (0.247)	0.398	3.385 (0.023)	3.454 (0.024)	0.038**	3.380 (0.023)	3.395 (0.023)	0.643
Valuation for intervention allocated (in 10,000 KES)	5.202 (0.102)	5.032 (0.108)	0.496	1.741 (0.102)	1.725 (0.089)	0.911	2.774 (0.138)	2.602 (0.133)	0.397
Number of household members	0.646 (0.010)	0.667 (0.010)	0.254	4.887 (0.116)	5.164 (0.110)	0.154	4.950 (0.106)	4.884 (0.112)	0.699
Share of household expenditure on food in past week	85.709 (6.490)	75.503 (5.542)	0.150	63.190 (4.442)	65.646 (5.737)	0.868	63.965 (3.899)	63.611 (3.377)	0.161
Household wealth (in 10,000 KES)			0.232	961	959	0.029**	959	959	0.306

Notes: Table shows balance of mean of variables measured at baseline which are listed on the left across all baseline recipients allocated to receive extension, inputs or livestock, or a cash equivalent. Respondent's valuation for interval time and household wealth are reported at 99th percentile. Standard errors are in parenthesis. * p < 0.1, ** p < 0.05, *** p < 0.01.

3.2 *Estimating the impact of recipient choice*

To answer the question of whether individuals who value a particular program benefit more from receiving that program as compared to similar individuals receiving a cash transfer, I pool data across the three interventions and estimate:

$$y_i = \alpha_p + \beta_1 Program_i + \beta_2 Program_i v_i + \beta_3 v_i + \varepsilon_i \quad (1)$$

where v is the ratio of the respondent's expressed value for the program to the cost of the program for person i , and $Program$ is an indicator that recipient i received a program rather than cash. α_p are dummies controlling for the aggregate value of the resources received by the recipient (cash or a program costing that cash value). The variation exploited here is the random variation, conditional on value of resources received, in whether a recipient gets cash or a non-cash intervention. Receiving a cash transfer of any value is the omitted category. In this and all specifications I use robust standard errors. If individuals who value programs much more than the cost benefit from the programs more than others, I expect that $\beta_2 > 0$. As v is unbounded, I assess the impact of outliers by reporting results for several transformations of v , including: v winsorized at 95th percentile, $\log(v)$ and v where any value-cost ratio above 10 is capped at 10.²

In Table 2 I present the coefficient of interest (β_2) for all transformations of v . For the sake of readability, other terms in the regressions are omitted. The results do not indicate that recipient valuations of programs have any discernible impact on outcomes, and the 95% confidence intervals rule out any meaningful effects. With respect to consumption, Column 1 suggests that, for program recipients, moving from the 25th percentile of valuation (1.25X program cost) to the 75th percentile (6.5X program value) results in an increase of KSH 13 (\$0.13) in monthly consumption. Removing outliers (column 4) implies a similarly modest KSH 45 increase. Moreover, in the

²These transformations of v were not specified in the pre-analysis plan and were added upon observing the distribution of v .

primary specification (column 1) the 95% confidence interval includes only changes in consumption of less than 1%. Even in the most favorable estimation (column 4) the 95% confidence interval indicates that shifting from the 25th to 75th percentile of valuation increases consumption by less than ~9%.

The results are similar with respect to assets. In the primary specification (column 1), shifting from the 25th to 75th percentile of valuation for program recipients increases assets by at most 2%, according to the 95% confidence interval. The 95% confidence interval of the most favorable estimation, when top-coding the valuation cost ratio, suggests that the maximum difference in assets between those that received the program but valued it little (25th percentile) and those that valued it more (75th percentile) is 16% of assets, although the point estimate is a more modest 6% difference.

Turning to the indices, the 95% confidence intervals for the food security, psychological well-being and autonomy indices indicate that program recipients with a valuation in the 75th percentile score no higher than 0.1 standard deviations on these indices than those in the 25th percentiles. The point estimate in column 1 is statistically different from zero for the psychological well-being index, but the remaining columns indicate this is due to outliers. Thus it appears that the degree to which respondents value the program they receive has very little impact on outcomes.

Table 2: Effect of type of program or cash allocation on primary outcome variables

	Program X Val-Cost Ratio	Program X Val-Cost Ratio (trimmed)	Program X ln(Val-Cost Ratio)	Program X Val-Cost Ratio (capped)	N	Mean of dependent variable
Monthly Per-Capita Cons (KES)	2.540 (1.658) [0.780]	7.230 (13.970) [0.930]	41.661 (90.645) [0.870]	8.726 (36.209) [0.940]	2887	4486.27
Food Security Index	0.000 (0.001) [0.820]	-0.002 (0.004) [0.930]	-0.032 (0.025) [0.680]	-0.014 (0.011) [0.710]	2887	0
Household Assets (KES)	30.940 (27.892) [0.750]	181.974 (146.093) [0.690]	1025.844 (916.244) [0.680]	383.446 (339.552) [0.780]	2887	34282.49
Psychological Wellbeing Index	0.002*** (0.001) [0.120]	0.000 (0.004) [0.940]	0.006 (0.027) [0.870]	0.003 (0.011) [0.940]	2887	-.03
Autonomy Index	0.000 (0.001) [0.820]	-0.005 (0.005) [0.690]	-0.040 (0.030) [0.670]	-0.008 (0.011) [0.820]	2887	-.06

Notes: Outcome variables are listed on the left. Each cell displays the coefficient for the interaction term from a regression of the outcome variable on program assignment, variants of the valuation-cost ratio and their interaction along with intervention fixed effects. Program is a dummy which takes the value 1 if respondent received a program instead of cash. Valuation is the respondent's stated valuation at baseline for the program into which they were randomized. Cost is estimated as the cost incurred to deliver a program per respondent. Costs are fixed for all respondents who were randomized to receive a given program or its cash equivalent in a given location. Standard errors are reported in parenthesis, FWER-adjusted p-values are reported in brackets. * p < 0.1, ** p < 0.05, *** p < 0.01

As an alternative method to assess the impact of recipient preferences, I define an indicator variable R which takes value 1 if either: a) the respondent values the program less than the cost of the program and receives cash, or b) the respondent values the program more than the cost and receives the program. Thus R can be interpreted as an indicator that the respondent's preferences were respected in the (random) decision to provide the program or cash. I pool data across the three programs and estimate:

$$y_i = \alpha_p + \beta_1 R_i + \varepsilon_i \quad (2)$$

where α_p again control for the aggregate value of resources transferred.

Considering the impact of respecting a respondents' preferences (i.e., provide cash if they value the program less than the cost and the program otherwise) Table 3 presents the results. I can rule out meaningful impacts on economic outcomes (consumption, food security and assets), however it appears providing respondents with the item they value most reduces psychological well-being by 0.07 standard deviations (not significant when correcting for multiple hypotheses) and reduces feelings of autonomy by 0.11 standard deviations. The latter result is robust to accounting for multiple hypotheses via FWER ($p = 0.03$). This result is driven primarily by individuals receiving a program: of those who received what they most valued, 79% received a program and 21% received cash. Since most respondents valued programs more than the cost (79%) for these respondents receiving the program is their preference and forms the majority of the group receiving their preference. Thus, to the extent receiving a program is correlated with receiving the more valued intervention, the former might also influence the results. When controlling for whether the individual received a program or cash, which is randomly determined, the relationship between receiving the more valued intervention no longer holds, as show in Table 4. In this table I also see a positive impact of receiving cash on our autonomy index, even when controlling for whether the respondent receives the intervention they most prefer.

Table 3: Effect of recipient preferences being respected in allocation on primary outcome variables

	Constant	Respondent preferences respected (as per cost)	N
Monthly Per-Capita Cons (KES)	4362.703*** (117.575)	-140.129 (131.417) [0.450]	2887
Food Security Index	0.037 (0.044)	-0.041 (0.035) [0.450]	2887
Household Assets (KES)	34991.659*** (1188.447)	-423.570 (1174.823) [0.640]	2887
Psychological Wellbeing Index	-0.032 (0.036)	-0.067* (0.036) [0.180]	2887
Autonomy Index	-0.207*** (0.038)	-0.111*** (0.038) [0.020]**	2887

Notes: Outcome variables are listed on the left. Regression includes intervention fixed effects with agricultural extension as omitted category. Respondent preferences respected is an indicator that takes the value 1 if either the respondent values the program less than the cost and receives cash, or the respondent values the program more than the cost and receives the program. Standard errors are reported in parenthesis, FWER-adjusted p-values are reported in brackets. * p < 0.1, ** p < 0.05, *** p < 0.01

Table 4: Effect of recipient preferences being respected in allocation on primary outcome variables, with controls

	Constant	Respondent preferences respected (as per cost)	Cash	N
Monthly Per-Capita Cons (KES)	4257.767*** (179.374)	-62.885 (164.139) [0.760]	132.797 (164.320) [0.850]	2887
Food Security Index	0.069 (0.049)	-0.065 (0.040) [0.390]	-0.040 (0.040) [0.810]	2887
Household Assets (KES)	35669.138*** (1637.535)	-922.266 (1411.689) [0.760]	-857.347 (1411.359) [0.850]	2887
Psychological Wellbeing Index	-0.056 (0.051)	-0.049 (0.045) [0.620]	0.030 (0.045) [0.850]	2887
Autonomy Index	-0.280*** (0.052)	-0.058 (0.046) [0.550]	0.091** (0.046) [0.190]	2887

Notes: Outcome variables are listed on the left. Regression includes intervention fixed effects with agricultural extension as omitted category. Respondent preferences respected is an indicator that takes the value 1 if either the respondent values the program less than the cost and receives cash, or the respondent values the program more than the cost and receives the program. Cash is a dummy which takes the value 1 if respondent received cash instead of a program. Standard errors are reported in parenthesis, FWER-adjusted p-values are reported in brackets. * p < 0.1, ** p < 0.05, *** p < 0.01

3.3 Assessing the relative impacts of constrained and unconstrained choice

While including recipient preferences in aid allocation decisions has little impact, it's possible that the allocation decisions of the aid industry perform better on average than the sum of individual decisions by recipients. To assess this possibility, I estimate the impact of receiving a cash transfer compared to receiving goods and services costing an amount equal to the cash transfer:

$$y_i = \alpha_p + \beta_1 Cash_i + \varepsilon_i \quad (3)$$

Table 5 shows the results from this specification. The point estimate suggests that households receiving cash transfers have monthly per capital consumption KSH 169 (~1.5 USD) higher than those who received programs costing an equivalent amount but this difference is not significantly different from zero. Moreover, the 95% confidence interval rules out large differences in consumption among cash and program recipients - the upper bound of the interval is ~4.25 USD which is approximately 10% of the sample mean monthly consumption. The results similarly rule out large impacts of cash on food security and assets in comparison to programs - the 95% confidence interval puts the maximum increment of cash over programs at 0.07 standard deviations for food security and negative ~25 USD, or 8% of the sample mean for assets. With regards to psychological well-being, there are no significant differences between cash and program recipients with the 95% confidence interval ruling out differences greater than 0.13 standard deviations. Even when adjusting for multiple hypotheses, the estimates suggest that cash transfer recipients score 0.13 standard deviations higher on the autonomy index, significant at the 1% level.

Table 6 shows the drivers of the autonomy index. The results indicate that cash transfer recipients are more likely to believe they are trusted by the implementing NGO, that the aid they received was tailored to their needs and that they were treated as an individual. They are less likely to report being treated with contempt by the implementing organization, that they were

Table 5: Effect of cash allocation on primary outcome variables

	Constant	Cash	N
Monthly Per-Capita Cons (KES)	4208.517*** (128.553)	169.366 (131.556) [0.350]	2887
Food Security Index	0.018 (0.033)	-0.003 (0.035) [0.970]	2887
Household Assets (KES)	34946.850*** (1235.305)	-321.023 (1174.576) [0.970]	2887
Psychological Wellbeing Index	-0.094*** (0.036)	0.059 (0.036) [0.250]	2887
Autonomy Index	-0.325*** (0.040)	0.125*** (0.038) [0.010]***	2887

Notes: Outcome variables are listed on the left. Regression includes intervention fixed effects with agricultural extension as omitted category. Cash is a dummy which takes the value 1 if respondent received a cash transfer instead of a program. Standard errors are reported in parenthesis, FWER-adjusted p-values are reported in brackets. * p \leq 0.1, ** p \leq 0.05, *** p \leq 0.01

persuaded to make a particular choice and that they can ask the NGO for what they need.

Table 6: Effect of cash allocation on autonomy sub-outcome variables

	Constant	Cash	N
Autonomy Index	-0.325*** (0.040)	0.125*** (0.038) [0.010]***	2887
I make important decisions in my life for myself	3.611*** (0.022)	-0.014 (0.021) [0.940]	2883
Other people and orgs enable me to live with dignity	3.076*** (0.037)	-0.022 (0.035) [0.940]	2880
NGOs trust the people they seek to help	3.374*** (0.030)	0.065** (0.026) [0.110]	2866
I would rather have little money but make my own decisions	3.534*** (0.026)	0.026 (0.024) [0.860]	2876
Org from whom I received aid treated me as an equal	3.620*** (0.030)	0.025 (0.027) [0.880]	2407
Org from whom I received aid treated me with contempt	1.655*** (0.047)	-0.111*** (0.038) [0.040]**	2412
Org from whom I received aid was arrogant	1.175*** (0.023)	-0.006 (0.021) [0.940]	2413
Aid was tailored to solve my problems	3.187*** (0.035)	0.250*** (0.032) [0.000]***	2415
Org from whom I received aid treated me as an individual	3.223*** (0.041)	0.247*** (0.032) [0.000]***	2411
Org from whom I received aid ridiculed me	0.011*** (0.004)	-0.004 (0.003) [0.820]	2416
I felt that I could ask the org for what I needed	0.380*** (0.021)	-0.064*** (0.019) [0.010]***	2416
Org from whom I received aid reduced my sense of control	0.213*** (0.018)	0.004 (0.016) [0.940]	2416
Org tried to persuade me to make a particular decision	0.177*** (0.017)	-0.038*** (0.015) [0.110]	2416
Org made me feel in control of my life	0.774*** (0.017)	0.020 (0.016) [0.820]	2416

Notes: Outcome variables are listed on the left. Regression includes intervention fixed effects with agricultural extension as omitted category. Cash is a dummy which takes the value 1 if respondent received a cash transfer instead of a program. Standard errors are reported in parenthesis, FWER-adjusted p-values are reported in brackets. * p < 0.1, ** p < 0.05, *** p < 0.01

All additional analysis discussed in the pre-analysis plan, including detailed index component results, results by program and heterogeneous results, are shown in the online appendix.

4 Conclusion

Through a randomized controlled trial low-income Kenyans were randomly selected to receive either a particular development program (agricultural extension, agricultural inputs, livestock transfers) or an amount of cash equal to the cost of the program. Prior to receiving any intervention, we elicited respondents' indifference point between cash and the program in question. Subsequently, we randomly assigned individuals to receive the program in question or a cash transfer equal to the cost of the program. This design addresses two questions: first, what is the relative impact of common development programs relative to cash transfers equal to the cost of the program? Second, does incorporating recipient preferences into the allocation of aid dollars affect the impact of aid programs?

I do not find any appreciable impact of incorporating respondent preferences in aid allocation. Utilizing a variety of measures of recipient preference, there is no discernible relationship between whether a recipient receives their preferred intervention (a program or cash) and components of well-being including consumption, food security, assets, psychological well-being and feelings of autonomy. Moreover, the 95% confidence intervals rule out effects of any meaningful magnitude. When comparing cash transfers to common aid programs I can rule out large differences in impacts on economic outcomes. Based on 95% confidence intervals, cash transfer recipients consume no more than ~3.5 USD more per person per month (~10% of mean consumption) than program recipients and score no higher than 0.07 standard deviations on an index of food security than program recipients. Program recipients have no more than ~\$25 USD (8% of mean assets) than cash transfer recipients. I do find that cash transfers increase feelings of autonomy and produce more favorable views of the implementing organization than non-cash interventions.

These results do not particularly support either the poor but efficient view - where impact is maximized by recipients allocating resources optimally according to their information and preferences - or the behaviorist view - that impact can be enhanced by constraining individuals to “do the right thing.” Whether recipients decide what to do with resources, or whether aid professionals allocate resources to the development interventions studied here makes little difference in terms of recipient well-being, both according to the point estimates of this study and the 95% confidence intervals of those estimates.

A useful implication of these results is that when the aim is to improve individual well-being via resources directed to that individual (i.e., not public goods) it does not matter so much how resources are transferred but only the value of those resources. Thus factors other than impact (such as ease of delivery, scalability or operational efficiency) are important in determining which poverty reduction strategies to pursue. These results should not be generalized broadly at this point, however, since they pertain only to several specific development interventions in one country. Further research, exploring other alternatives to cash transfers, is necessary to establish whether cash transfers perform better, worse or the same as programs on average or only in specific instances, and to understand the drivers of relative performance. Further, while there is little gain from an impact perspective of incorporating recipient preferences into allocating aid resources, I do find that the choice enabled by cash transfers results in greater feelings of autonomy and favorable opinions of NGOs. Thus, the full implications of involving recipients in the use of aid dollars can be further explored.

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Appendix

Indices and Variables

Variables or indices below marked with a ⁺ are primary outcomes of interest. Variables or indices below marked with a # are secondary outcomes. Impacts on variables or indices below marked with a * will also be reported to illuminate the specific cause of the change in the primary outcome.

1. Consumption⁺ - monthly KES consumption per capita
 - (a) Food*
 - i. Food own production*
 - ii. Food bought
 - A. Meat, fish & dairy*
 - B. Fruit & vegetables*
 - C. Cereals*
 - D. Other food*
 - (b) Temptation good expenditure*
 - i. Alcohol
 - ii. Tobacco
 - iii. Gambling
 - (c) Airtime, internet, other phone expenses*
 - (d) Travel, transport, hotels*
 - (e) Personal and household items*
 - i. Clothing and shoes
 - ii. Personal items such as soap, shampoo, etc.
 - iii. Household items such as matches, kerosene, etc.
 - iv. Cooking fuel
 - (f) Recreation/entertainment*
 - (g) Housing*
 - i. Rent
 - ii. Electricity
 - iii. Water

- (h) Education expenditures*
- (i) Medical expenditure*
- (j) Social expenditure*
 - i. Religious expenses or other ceremonies
 - ii. Weddings
 - iii. Funerals
 - iv. Charitable donations
 - v. Dowry/bride price
 - vi. Fees paid to the village elder, chiefs or other officials
- (k) Other expense greater than KSH 1,000

2. Food security⁺ - weighted standardized index of:

- (a) Number of times last month adults cut or skipped meals (negatively coded)*
- (b) Number of times last month children cut or skipped meals (negatively coded)*
- (c) Number of times last month had to borrow food or rely on help from a friend or relative (negatively coded)*
- (d) All household members eat two meals a day (indicator)*
- (e) All household members usually eat until content (indicator)*
- (f) Number of times last week respondent has eggs, meat or fish*

3. Income[#] - sum (KSH) of monthly household income from:

- (a) Livestock*
 - i. Cows
 - A. Value of milk (sold and consumed)
 - B. Value of meat (sold and consumed)
 - C. Value of animals sold
 - D. Value of other products
 - E. Cost of care (e.g. fodder, veterinary care, etc.)
 - ii. Small ruminants
 - A. Value of meat (sold and consumed)
 - B. Value of animals sold

- C. Value of other products
 - D. Cost of care (e.g. fodder, veterinary care, etc.)
 - iii. Birds
 - A. Value of eggs (sold and consumed)
 - B. Value of meat (sold and consumed)
 - C. Value of animals sold
 - D. Cost of care (e.g. fodder, veterinary care, etc.)
 - (b) Agricultural income (monthly average)*
 - i. Value of crops harvested in short rains season
 - ii. Costs of seeds, fertilizers/herbicides/pesticides, hired machines, water, labor and other expenses in short rains season
 - (c) Enterprise income*
 - i. Sales in prior month (prorated for share of enterprise owned if applicable)
 - ii. Costs of electricity, wages, water, transport, purchase of inputs, other costs (prorated for share of enterprise owned if applicable)
 - (d) Wage income*
 - i. Sum of income from outside labor
4. Assets⁺ - sum (in KSH) of value of:
- (a) Productive assets*
 - i. Irrigation pump
 - ii. Hose pipe
 - iii. Ox-Ploughs
 - iv. Oxen/work bulls
 - v. Knapsack sprayers
 - vi. Wheelbarrows
 - vii. Ox-carts/donkey carts
 - viii. Hand carts
 - ix. Other farming tools
 - x. Fishing equipment (boats, canoes, etc)
 - xi. Other asset used for agriculture or business
 - (b) Vehicles*

- i. Bicycle
 - ii. Motorbike
- (c) Furniture*
 - i. Sofas
 - ii. Chairs
 - iii. Table
 - iv. Clock/Watch
 - v. Beds
 - vi. Mattresses
 - vii. Cupboards
 - viii. Other furniture
- (d) Household durables*
 - i. Cell phone
 - ii. Sewing machine
 - iii. Radio, tape- OR CD player
 - iv. Battery
 - v. Solar panel
 - vi. Television or computer
 - vii. Kerosene stove
 - viii. Refrigerator
 - ix. Insecticide treated bed net
- (e) Other
- (f) Livestock*
 - i. Cows
 - ii. Birds
 - iii. Small ruminants
- (g) Financial assets* - net balance (KSH) of savings minus outstanding loans:
 - i. Savings with an institution (bank, SACCO, micro-finance organization)
 - ii. Savings with M-Pesa
 - iii. Savings in any other place (e.g., with family or friends)
 - iv. Loans made by friends or family

v. Loans from moneylenders, micro-finance institutions, shops, banks or other sources

5. Psychological well-being⁺ - weighted standardized index of:

- (a) CESD (depression)* with standard scoring (<https://www.outcometracker.org/library/CESD.pdf>)
- (b) GHQ-12* with standard scoring
- (c) WVS (happiness)* (1-4 scale)
- (d) WVS (life satisfaction)* (1-10 scale)

6. Autonomy, dignity, trust⁺ - weighted standardized index of:

- (a) “I feel that I am autonomous - I make the important decisions in my life for myself”* (1-4 scale)
- (b) “Other people and organizations enable me to live with dignity”* (1-4 scale)
- (c) “NGOs and organizations that try to lift people from poverty trust the people they seek to help”* (1-4 scale)
- (d) “I would rather have little money and make my own decisions than have more money and let others make my decisions” (1-4 scale)
- (e) “The organization and people from whom I received the aid treated me as an equal” (1-4 scale)
- (f) “The organization and people from whom I received the aid treated me with contempt” (1-4 scale)
- (g) “The organization and people from whom I received the aid behaved arrogantly” (1-4 scale)
- (h) “The aid I received was tailored for my benefit and to solve my problems” (1-4 scale)
- (i) “The organization providing the aid treated me as an individual, not just another one of the masses” (1-4 scale)
- (j) “Did anyone from the organization from whom you received the aid ridicule you?” (0-1)
- (k) “Did you feel that you could ask the person who gave you the aid for what you needed, and make demands upon them?” (0-1)

- (l) “Did the organization and people from whom you received the aid do anything to reduce your sense that you could control your own life?” (0-1)
 - (m) “Did the organization and people from whom you received the aid try to persuade you to make a particular decision?” (0-1)
 - (n) “Did the organization and people from whom you received the aid do anything to help you feel in control of your life?” (0-1)
7. Labor[#]- Hours spent per week per capita on income generating activities, including:
- (a) Working in agriculture for this household*
 - (b) Tending animals for this household*
 - (c) Working in a non-farm or livestock business owned by this household*
 - (d) Working for pay for someone outside the household (in agriculture, livestock, housework, casual labor, salaried job or other paid work)*
8. Education index[#]
- (a) Weighted standardized index of:
 - i. Proportion of children (<19) in school*
 - ii. Average days of school missed per child (<19)* - *negatively coded*
 - iii. Average perception of child (<19) school performance*
 - iv. Average spending on school expenses per child (<19)*
 - v. Average of highest level of education expect children (<19) will complete*
 - vi. Average time studying or in school per child (<19)*
9. Sources of heterogeneity (as measured at baseline)
- (a) Age (of respondent)
 - (b) Gender (indicator for female)
 - (c) Wealth
 - i. Land and buildings - sum (in KSH) of value of:

- A. House and the land under it
 - B. Fish pond
 - C. Other buildings (e.g., sheds)
 - D. Land
- ii. Assets - defined above (excluding value of livestock)
- (d) Mindset
 - (e) Grit