Policy Research Working Paper 9125

Beneficiary Views on Cash and In-Kind Payments

Evidence from Ethiopia's Productive Safety Net Programme

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WORLD BANK GROUP
Development Economics
Knowledge and Strategy Team
January 2020

Abstract

Economists often default to the assumption that cash is always preferable to an in-kind transfer. Do beneficiaries feel the same way? This paper addresses this issue using longitudinal household data from Ethiopia where a large-scale social safety net intervention (PSNP) operates. Even though most payments are made in cash, and even though the (temporal) transaction costs associated with food payments are higher than payments received as cash, most beneficiaries stated that they prefer their payments only or partly in food. Higher food prices induce shifts in stated preferences towards in-kind transfers. More food secure households, those closer to food markets and to financial services are more likely to prefer cash. Though shifts occur, the stated preference for food is dominant: In no year do more than 17 percent of households prefer only cash. There is suggestive evidence that stated preferences for food are also driven by self-control concerns.

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Key words: social protection, food transfers, cash transfers, Ethiopia, PSNP

JEL classification: D40, I38, O12

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1. Introduction

Social protection programs that seek to reduce poverty are now widespread (ILO 2014). In Africa alone, the number of social protection programs have tripled in the last 15 years (Cirillo and Tebaldi 2016) to the extent that today all African countries operate at least one such program (Beegle, Honorati, and Monsalve 2018). Alongside their introduction has been discussions regarding technical aspects of their implementation with issues such as targeting, the level and frequency of payments, the duration of these programs, whether receipt of benefits should be conditioned on specified behaviors and so on A key design issue relates to their payment modality: cash or in-kind. While Bastagli et al. (2016) report that approximately 130 low- and middle-income countries have at least one cash transfer program, Alderman, Gentilini and Yemtsov (2017) note that the use of in-kind payments such as food in social programs remains widespread.

From the perspective of program designers, cash transfers have advantages with respect to timeliness of delivery and reduced delivery costs (Gentilini 2007; Margolies and Hoddinott 2014). Despite these advantages, Aker (2017) shows that in-kind transfers such as food remain widespread for reasons including paternalism (Cunha 2014; Currie and Gahvari 2008), targeting (Bearse, Glomm, and Janeba 2000; Currie and Gahvari 2008; Moffitt, 1989; Nichols and Zeckhauser 1982; Pirttilä and Tuomala 2002), the need to supply goods not available in local markets (Aker, 2017) and the sense that these are more politically acceptable than cash transfers (Epple and Romano, 1996). Additionally, cash transfers are seen to provide beneficiaries with choice. Building on the theoretical work by Southworth (1945), transfers are infra-marginal for some recipients: the amount of the in-kind transfer is less than what the

household spends on the transferred good after the transfer. These recipients will be indifferent between cash and in-kind transfers. For others, in-kind transfers are extra-marginal: they distort consumption toward the transferred goods – unless the in-kind transfers can be converted into cash. Based on these micro-economic insights, economists typically default to the assumption that program beneficiaries would rather receive cash than an in-kind transfer because the cash transfers do not constrain their choices (Currie and Gahvari 2008). Thurow (1974) goes as far as stating that "[…] the general economic case for cash transfers is strong enough that the burden of proof should always lie on those who advocate restricted transfer (p. 195)".

Yet, while there is a growing empirical literature on the impacts of cash and food transfers in developing countries – see Gentilini (2016) and GAO (2016) for summaries – the evidence base supporting the assertion that beneficiaries would rather receive cash to food or other in-kind transfers is surprisingly thin.[1] Based on focus group discussions held in eight

[1] This is striking given that many donors supporting social protection programs state that beneficiary preferences and knowledge should be taken into account when designing interventions. Examples include the UK's Department for International Development's (DFID) "Smart Rules" governing all programs operated by DFID that state that DFID staff must "Ensure that the views and experiences of citizens and beneficiaries inform the design and delivery of our programmes (DFID, 2018, p15). The European Union's guidance notes on humanitarian assistance state that Humanitarian assistance must be provided in a way that enhances protection and upholds the safety, dignity and preferences of beneficiaries" (European Union 2013, p13). The World Bank has committed to "Achieving 100 percent Citizen Engagement (CE) in projects that have clearly identifiable beneficiaries" where CE entails finding ways to include citizens to assess priorities for interventions and to learn about design and implementation (Manroth et al 2014, p4).

countries, Berg, Mattinen and Pattugalan's (2013, p. 52) report "an overwhelming preference for cash over in-kind assistance".[2] But quantitative studies describe more varied responses. Ethiopian data from the late 1980s showed that across three rural localities, 19, 83 and 90 percent would have liked to have received food rather than cash payments (Webb and Kumar, 1995). Predilections for in-kind transfers are also reported in surveys conducted in India (Khera, 2013), Niger (Hoddinott, Sandström and Upton, 2013) and, to a lesser extent, Afghanistan (UNHCR 2015).

Why, if given a choice, would many program beneficiaries rather receive an in-kind transfer instead of cash? Southworth (1945), along with more modern restatements such as Currie and Gahvari (2008) and Cunha (2014) make clear that their models are predicated on an assumption that cash and in-kind transfers are equal valued. But in practice, this may not hold as equivalent value can be affected by: the purchasing power of the cash transfer (e.g. given prices of purchased goods, how much food can be purchased with a cash transfer); the potential re-sale value of in-kind goods (if the in-kind transfer could be sold, how much cash would be received); the transactions costs associated with receiving a cash or in-kind payment; and the transactions costs associated with using a cash or in-kind payment (on this, see Doocy and Tappis, 2017). Beneficiaries might also be concerned about price volatility. Suppose a household can chose between a food transfer and a cash transfer. Food prices might be either

[2] In standard microeconomic theory, preferences are stable; along with prices and incomes, they determine choices that economic actors make. In papers such as Berg, Mattinen and Pattugalan (2013), the word preference is used in a more colloquial sense to denote the choice (food or cash) a beneficiary would make if they were allowed to choose their own payment modality. The latter approach is followed in this paper.

"high" or "low"; averaging over these, the food and cash transfer are of equivalent value. But in terms of food consumption, for risk averse beneficiaries, the expected utility of the certainty of food transfer is higher than the expected utility of the cash transfer. There may also be behavioral or psychological factors at work. Beneficiaries might wish to receive payments in cash if in-kind transfers are perceived to be stigmatizing (Moffitt, 1983). Receiving in-kind payments can be seen as a commitment device. As part of the debate regarding replacing India's food transfer system (the Public Distribution System, PDS) with cash payments, Jean Dreze has noted PDS participants "…are worried that cash can be more easily misused than food, because food can only be consumed in small quantities over time while cash is easily spent in one go".[3] Lastly, if questions regarding beneficiaries' views about payment modalities are asked in the context of an ongoing program, responses might reflect a concern that giving the "wrong" response might lead to the transfer program being terminated (Berg, Mattinen and Pattugalan, 2013).

Few studies provide systematic empirical evidence on why households might rather receive in-kind rather than cash transfers.[4] This lacuna motivates this study that uses unique

[3] http://www.ideasforindia.in/topics/miscellany/ashok-kotwal-speaks-with-jean-dreze.html. Accessed July 24, 2018.

[4] An exception is Khera (2013). Looking at a range of household characteristics, she finds a strong relationship between literacy and food preferences; illiterate persons are more likely to prefer food. She finds no relationship between preferences and household demographic characteristics, nor are there associations between cash or food preferences and distances to markets. A related exception is work by Ghatak, Kumar and Mitra (2016) who look at associations between beneficiary characteristics and cash payments versus an in-kind payment – a bicycle that will assist adolescent girls in attending school. They find that wealthier and larger households are more likely to prefer

data well suited to analyzing this issue; data drawn from evaluations of Ethiopia's Productive Safety Net Programme (PSNP). The PSNP is the second largest safety net program in Africa reaching about eight million chronically food insecure people. A feature of the program is that its beneficiaries receive their payments either in cash or food – or in some combination of both. Further, the share of cash and food payments in total payments have varied over the years since the program began in 2005. Household and locality panel data were collected bi-annually over five survey rounds fielded between 2006 and 2014. In each round, beneficiary households were asked whether they would rather receive payments in cash or in-kind (food). These data make it possible us to describe predilections for cash and for food, show how these change over time, and allow an assessment of associations between them and household and locality characteristics. Ethiopia is an especially appropriate country to situate such a study as, since the beginning of the PSNP, there has been an active debate on whether the payments should be made in cash or in-kind. Thus, while speaking to the international literature on this topic, this study also contributes to this local policy debate in Africa's second most populous country.

2. Context and data

This section provides contextual information. It describes the data used in the paper including information on sampling, household and market characteristics, PSNP payments, market prices and beneficiary views on cash and food payments.

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cash. Beneficiaries who belong to villages that are very far from a bicycle store were less likely to prefer cash over kind as were older beneficiaries.

Ethiopia's Productive Safety Net Programme

The PSNP began in 2005 in response to continual appeals for emergency food assistance, widespread food insecurity and concerns that repeated droughts were leading to asset depletion (Devereux et al, 2014; Slater and McCord, 2013). Starting in the highland regions of Ethiopia (Amhara, Oromia, Southern Nations, Nationalities and Peoples' Region and Tigray), the program was expanded (after initial piloting in some districts) to the agro-pastoral regions of Afar and Somali in 2010. [5] The PSNP provides transfers to food insecure households in chronically food insecure localities while also attempting to prevent asset depletion at the household level and creating assets at the community level (Government of Ethiopia, 2004; 2010). Unlike the annual emergency appeals that it largely replaced, the PSNP was conceived as a multi-year program designed to provide recipients with predictable and reliable transfers. Most beneficiary households receive payments for undertaking public works. A small proportion of beneficiaries (largely households with elderly or disabled members) receive unconditional payments called direct support and a few receive both. Public works payments typically account for 80-85 percent of all PSNP payments (Berhane et al. 2015). Most PSNP activities and transfers are made during the non-agricultural season, the months *Tir* to *Sene* in the Ethiopian calendar (approximately mid-January to mid-July). The PSNP uses a mix of

[5] As of 2020, the PSNP is in its fourth implementation phase. This has introduced changes in organizational and implementation structures and an increase in coverage (World Bank 2014). This paper focuses largely on the first three phases of PSNP – a period covering 2006-2014 and on the highland regions of Amhara, Oromia, SNNP and Tigray.

geographic and community-based targeting to identify chronically food-insecure households in chronically food-insecure *woredas* (districts). Multiple evaluations of the program have shown that it is well-targeted (Coll-Black et al, 2012) and has reduced household food insecurity and distress sales of assets (Berhane et al. 2015; Berhane et al. 2013).

Payments are made to beneficiaries in the form of food or cash. The PSNP's Program Implementation Manual (Government of Ethiopia, 2004; 2010; 2014) provides details of how cash and/or food allocations are determined. Planning for a given year's operation begins with the development of a woreda food-security plan. This includes the number of beneficiaries, the amount of cash and food requested, and the timing of payments. An initial goal of the PSNP was to shift the financing of the program from food aid to cash (Government of Ethiopia, 2004; 2014), motivated in part by the hope that cash transfers would create positive spill-over effects to small-holder farmers stimulating local agricultural production and food markets.[6] Woredas are encouraged to request payments in cash if there are local food markets with food available and when they have the capacity (e.g. finance officers; cashiers; safes) to disburse cash (Government of Ethiopia, 2004; 2014).[7] These requests are first passed to region officials for review and then to the Federal Food Security Coordination Directorate (FCSD) for further

[6] Filipski et al. (2016) illustrated the sizeable nationwide spillovers of PSNP. They found that the program increased national value added by 0.99%.

[7] This is not always followed in practice. Figure S1.1 in the Appendix shows no clear pattern when the payment modality household received is regressed on community's distance to the nearest town. Even in the most remote localities (more than 30 km away from the nearest town), about 70 percent of the households received cash payments during the study period.

review and approval. The FCSD decides on the cash-food split for each region based on region requests and the predicted availability of food and cash; this availability reflects the level of multi-year (or in some instances, annual) commitments made by the international donors who provide cash (such as the World Bank and the UK's Department for International Development) to the program. It also produces a "food flow requirements" analysis indicating when food will be made available to woredas for payment (a similar plan is made for cash payments). Once these plans are finalized, the decision to provide food and/or cash is effectively locked in for the upcoming year.[8] Food payments consist of three kilograms of cereals (usually wheat or maize) for each day worked (Government of Ethiopia, 2010). Cash payments are intended to be approximately equal to the value of the food payments. When the PSNP began operations, cash payments were set at a uniform six birr per day, but by 2015, they had risen to 14-18 birr per day in nominal terms (Berhane et al 2015).

Data: Households

Since 2006, Ethiopia's Central Statistical Agency has administered a large household panel survey in localities in which the PSNP operates. The initial sample was based on a stratified sampling. Districts (woredas) were randomly selected proportional to their size from a list of chronically food-insecure woredas stratified by region where the PSNP was operating in 2006. Within each woreda, enumeration areas (EAs) were randomly selected from sub-districts

[8] In principle, these allocations can be revised after PSNP operations commence. However, the process of doing so is so disruptive – in particular, it leads to significant delays in making payments – that this only occurred in 2008.

(*kebeles*) where the PSNP was operating. Within each EA, 15 beneficiary and 10 non-beneficiary households were sampled from separate lists for each group, yielding 25 households per EA. This generated a sample of 146 EAs and, because a few sampled households were not interviewed, 3,688 households (Gilligan, Hoddinott and Taffesse, 2009). These same households were followed bi-annually until 2014. In each survey round, the interviews took place during the lean season (roughly late May to early August). The annual attrition rate across the five survey rounds about 1.9 percent per year. Much of this attrition is due to kebeles being dropped where the PSNP ceased operating. Work investigating whether potential differences in attrition rates can be attributed to differences in baseline characteristics shows that being a program beneficiary was not correlated with the probability of attrition. Older and smaller households were slightly more likely to attrite than other household types, but the correlation between attrition and these characteristics was small (Berhane et al., 2013).

Program re-targeting was carried out periodically and as a result, many households that were non-beneficiaries became beneficiaries by the time later survey rounds were fielded. In addition, new households were periodically added to the sample to reflect the geographic expansion of the program but also because of the decreasing share of non-beneficiary households in the original sample. In this paper, the sample is restricted to households that benefitted from the program at the time of the interview – or at any time in the past. This maximizes the sample size while ensuring that the sample is formed of households that have a

direct experience with the PSNP. After dropping households with missing observations, an unbalanced panel data set remains, consisting of 11,989 observations from 3,649 households.[9]

In addition, surveys were conducted at the kebele level using structured focus group discussions with kebele leaders and other people who are knowledgeable about the locality. The information collected in these discussions includes: kebele characteristics such as infrastructure and population size, and aspects of PSNP implementation. As a part of this survey, retrospective price data were collected on monthly prices on grains consumed by households in that locality. The informants were also asked to estimate the distance to the nearest food market and bank; distributions of these are reported in Figures S1.2 and S1.3 in the appendix.

This population poor and food insecure. Mean monthly per capita consumption in 2006 was 133 birr per capita or, approximately $0.49 US per person per day. Food accounted for 82 percent of consumption. The Government of Ethiopia measures food security using a construct called the "food gap". This was measured by asking survey participants to report the number of months, out of the preceding 12 months, that they had "problems satisfying the food needs of the household" with a month where the household had "problems satisfying food needs" being defined as one where the household experienced hunger for five or more days. Table 1 shows that only 37 percent of households in the sample report being fully food secure (i.e. food gap is zero) at any point across the five survey rounds. The mean food gap is 2.4 months. More than three quarters of household heads (77.9 percent) have never attended school and just over a

[9] These households are found in four regions (Amhara, Oromia, SNNP and Tigray), 78 woredas and 191 EAs.

quarter (28.7 percent) are female headed. They are physically isolated. Only about half of the sample live within three kilometers of a food market and just five percent live within three kilometers of a bank. While the sample is evenly spread across the four regions (Tigray, Amhara, Oromia, SNNP), there is a slightly lower proportion of observations in earlier rounds (2006, 2008) compared to the later rounds (2012, 2014).

Data on receipt of PSNP payments were recorded during the survey. Enumerators recorded payment data directly from "client cards", a document held by PSNP beneficiaries that lists their monthly payments. When these cards were not available, respondents were asked to recall their payments by month. Payment information includes whether the payment is made as cash or as food – and if food, what type of food – as well as the total amount of payment received. Comparisons of payment data based on client cards and from self-reports show that levels, distributions and timing of payments are comparable. Further, limited access to PSNP payroll data confirms that the self-reported data correlate with the payroll data (Berhane et al, 2013). By converting the quantities of food payments received by beneficiaries using the market price data, it is possible to calculate the share of payments made in food and in cash. In 2006, cash payments accounted for about 60 percent of all payments. [10] This increased to 71 percent in 2008, fell in 2010 but rose thereafter with cash accounting for 73 percent of the value of all payments in 2014. At the household level, 85 percent of the households in the sample report having received at least one food payment and 89 percent report receiving at

[10] Similar patterns emerge when data are disaggregated by beneficiary type (public works or direct support). These results are not reported but are available upon request.

least one cash payment during the study period. Consequently, 75 percent of the households have direct experience with both cash and food payments. Reselling of food transfers is rare. In 2016, 93 percent of the households that received food transfers reported that they never sold any of them, and most of the remaining 7 percent did so rarely (Hoddinott, Stifel, Hirvonen, Minten, 2018).[11]

Starting in 2010, the household surveys began collecting more detailed information on beneficiaries' experiences associated with obtaining their payments. In order to receive their payments, beneficiaries are instructed – typically with 1-2 days notice – to go to a "pay point", nearly always a roadside location. These are supposed to be sited in such a way that beneficiaries do not have to travel more than three hours (one way) from their home. In practice, however, logistical considerations – most notably road conditions which determine where and how far vehicles carrying payments can travel – play a role in the siting of these pay points. Table 2 describes the transactions costs associated with receiving food and cash payments by year.[12] While there is some variability in these data from round to round, the following features emerge. First, generally pay points for food are farther away than those for cash, reflecting the difficulties that heavy goods vehicles face when carrying several tons of grains to remote areas. Second, irrespective of transfer modality, virtually all beneficiaries walk

[11] Across all rounds, PSNP payments were equivalent to approximately 15 percent of household consumption.

[12] Total transactions costs would also be affected by the number of trips made to receive payments. Looking at payment data covering the five months prior to each survey round, there are always more cash payments than food payments, but the magnitude of the difference in most years is 0.3-0.8 trips over a five-month period. The exception is 2012 when there were 1.6 more cash payments.

to the pay points. Third, because it takes longer to get to a pay point distributing food, and because it takes even longer to get home again, a significant proportion of food beneficiaries are forced to sleep over at the pay point. Consequently, fourth, beneficiaries reporting that they received food payments are more likely to report having spent money on food and accommodation. But the magnitudes of these costs are small. In 2014, the average food recipient spent 17.6 birr (or 4% of the average monthly transfer[13]) on transaction costs while the cash recipient spent 10.4 birr (or 2.3% of the average monthly transfer). Collectively, these four points suggest that there are higher transaction costs associated with receipt of food payments, but these are time, not monetary, costs. Once at the pay point, food and cash beneficiaries report similar experiences in terms of how they were treated and their payments and relatively few reported being harassed or robbed when travelling home after receiving payment.

Data: Markets and prices

Hoddinott et al (2018) show that most PSNP kebeles in the highlands are served by periodic markets; only 13 percent have a food market operating daily. The markets are typically situated on good (all-weather) roads and have access to electricity and cell phone coverage. Grains are available in all markets, most offer some fruit and vegetables, but animal source foods are not always found. They are large, with 72 percent having 50 traders or more. But they are relatively

[13] As transfers are not received every month, this percentage is an upper estimate.

distant from urban centers; on average, the nearest city with a population of 20,000 people or more is 46 km away (median: 40 km).

Previous research on PSNP finds that in years of high inflation the real value of the unindexed cash payments lost value relative to food payments (Sabates-Wheeler and Devereux 2010). Given the lower real value of the cash payments, high food inflation should shift infra-marginal households towards wishing that they could receive food payments. The challenge is to construct a meaningful measure of inflation that is specific to the PSNP localities where the data were collected. To address this, note that each survey round includes 12 months recall data on the prices paid by consumers for staples. This information can be used to construct a cereal price index, specifically a weighted average of prices of the 6 main cereals (maize, teff, barley, wheat, sorghum, and millet) in each community in each survey round. The weights are based on the consumption shares of each cereal type in the community and derived from the data collected in the food consumption module of the household questionnaire. Applying weights from the first (2006) and last (2014) survey rounds, a Fisher Ideal price index is constructed (see Deaton and Tarozzi 2000) that captures both the temporal and spatial differences in price levels. Appendix B provides more information on this cereal price index; Figure B1 shows how the index varied over the survey rounds in each region.

This cereal food price index can be used to adjust the nominal daily public work wages to assess their purchasing power over time. Figure 1 shows how the real daily wage rates (expressed in 2014 birr) have fluctuated over time. The most dramatic is the reduction in the purchasing power of the PSNP Public Works wage between 2006 and 2008, a consequence of the massive food price spike that occurred across Ethiopia (and indeed, around the world) in

2008. While the PSNP wage had been increased from 6 to 8 birr per day, this was nowhere near sufficient to offset the increase in cereal prices.

[FIGURE 1]

Data: Beneficiary views on cash and food payments

Lastly, and crucially for this analysis, in each round PSNP beneficiary households were asked the following question[14]: "Given a choice, what proportion of your payment would you like to receive in cash and what proportion would you like to receive in-kind?" with response options: "All cash"; "75% cash; 25% food"; "50% cash; 50% food"; "25% cash; 75% food"; and "All food". Even though most PSNP payments are paid in cash, and even though the (temporal) transaction costs associated with food payments are higher than payments received as cash, the overwhelming majority of the beneficiary households indicated that they wanted to receive payments either only or partly in food (Table 3). On average, across rounds, only 12 percent of the households wanted cash-only payments. More than half would have liked that 75 percent or more of their payments were made in food (Table 3; also see first row of Table 1), the dependent variable used in the econometric analysis below. Table 3 also suggests that these stated preferences are not stable over time. For example, in 2008 stated preferences shifted toward food type payments. As noted above, with the purchasing power of the wage falling by 50 percent or so (see Figure 1), it is perhaps not surprising that in 2008 there is a sharp shift in

[14] In 2006, this question was only asked from households that reported benefitting from the PSNP. In the subsequent rounds, this was asked from all households.

household preferences away from cash toward food payments (Table 3). These two observations– that few PSNP beneficiaries state that they would prefer only cash payments and that preferred shares of payments in food or cash are not stable over time – form the first two findings of this paper.

3. Econometric approach

The econometric analysis focuses on modelling household's stated payment modality preferences. These are modelled using a binary variable equaling one if household *h* in village *v* at time *t* reports preferring food payments (100 % food or 75 % food), zero otherwise (50% food, 25 % food or 0 % food):

(1) $$food_{hvt} = X'_{hvt}\beta + \gamma\, F_{vt} + W'_v\delta + R'_v\eta + t'_t\theta + \varepsilon_{hvt}\,,$$

where X_{hvt} is a vector of household characteristics such as household's self-reported food security status, size (+ squared term), head's characteristics (age, sex and level of education) and composition of the payments (cash or food) received by the household at the time *t*. Variable F_{vt} is the food price index calculated for the village at the time of *t*. Vector W_v represents time-invariant community level characteristics: distances to the nearest food market and bank. Indicator variables for the region in which the household is located are captured in vector R_v while the vector t_t captures survey time dummies. Together, the inclusion of these two vectors mean that the model controls for both time and region fixed effects. Finally, ε_{hvt} represents the error term. A linear probability model (LPM) is used to estimate equation (1). Robustness checks include alternative regression models, including logit and ordered logit. Finally, standard errors are clustered at the household level to account for serial correlation.

4. Results

This section provides results. It begins with basic results before considering robustness checks, interaction terms, household fixed effects. It also discusses the idea of food payments as commitment devices.

Basic findings

Basic results are found in Table 4. Column (1) focuses primarily on household characteristics. Controlling for time and region fixed effects, food secure households are 3.1 percentage points less likely to state that they prefer receiving payments in the form of food. Stated preferences for food rise with household size (but at a diminishing rate) and with the age of the household head. The associations between preferences for food and the schooling levels or the sex of the household head are not statistically significant. The coefficient on the year dummy for 2008 equals 0.212, indicating that relative to the omitted category (2006, the year of the first survey), preferences for food jumped by more than 20 percentage points during the height of the food price crisis. Considering that 52.4 percent of the households in the sample (Table 1) prefer food payments, this translates into a 40-percent change in payment modality preferences.

Column (2) adds variables denoting households' access to food markets and financial services (banks). Living within three km of a food market reduces preferences for food by 2.8

percentage points. Living within three km of a bank has a similar association, reducing preferences for food by 3.6 percentage points.

Column (3) adds the food price index. The coefficient is positive and statistically significant. A one-unit increase in food price index is associated with a 2.3 percentage point increase in the likelihood of stating a preference for food payments. While this magnitude may seem small, the cumulative effect of food prices, food and financial services access and food security is large. Consider a food secure household living within 3 km of both a food market and a bank where food prices are 1 standard deviations[15] lower than elsewhere. *Ceteris paribus*, these joint characteristics shift preferences towards cash by 12.3 percentage points. Considering that 52.4 percent of the households in the sample (Table 1) prefer food payments, this translates into a 23-percent shift in preferences toward cash.

Finally, column 4 shows that the main findings do not change if variables capturing the transfers received by the households are excluded from different forms of the model.

Robustness: Modifying the outcome variable

The next step is to explore whether these findings are robust to alternative econometric techniques. First, using a logit model instead of a linear probability model yields nearly identical point estimates and marginal effects; see Appendix Table S1.1.

Second, as the selection of the cut-off point in the outcome variable might seem arbitrary, Table 4 is re-estimated, replacing the outcome variable with a binary variable that

[15] 1 standard deviation equals 1.057; see Table 1.

obtains a value 1 if the household prefers 100 % food; 75% food or 50% both, and zero otherwise. Appendix Table S1.2 shows that the results are robust to the defining the outcome variable in this way.

Third, the decision to collapse the categorical outcome variable into a binary one discards potentially useful information. This is addressed by using ordered logit models that are more suited to analyzing ordered outcome variables. Appendix Table S1.3 reports results based on an ordered logit model. The estimated marginal effects are in line with what is reported in column 3 of Table 4. Food secure households are less likely to state that they prefer food and more likely to prefer cash. Access to food markets and banks are associated with a shift in preferences away from food to cash payments. Finally, increases in food prices are associated with a shift in preferences away from cash to food payments.

Interaction terms

Do these associations documented above differ between food secure and food insecure households? This is explored by interacting household's food security status with their access to markets, banks and food price index. Many of these interaction terms appear with insignificant coefficients (Table S1.4 in the Appendix). The exception is the interaction on food price index; the coefficient on the interaction term is negative and the joint significance test cannot reject the null that the coefficient is equal – in absolute terms – to the coefficient on the un-interacted price index variable (Wald test; $p=0.115$). This implies that, in contrast to food insecure households, the stated preferences of food secure households are less influenced by higher (or lower) food prices.

Household fixed effect models

The base econometric specification does not fully exploit the panel nature of these data. Accordingly, Equation (1) is re-estimated, replacing the time-invariant variables (e.g. distances to markets and banks) with household fixed effects:

(2) $$food_{hvt} = D'_{hvt}\vartheta + \gamma\, F_{vt} + t'_t\theta + \mu_{hv} + \varepsilon_{hvt}\,,$$

where D_{hvt} is a vector of *time-varying* household characteristics and F_{vt} is the price index observed for the community at time t. The term μ_h represent household fixed effects.

Table 5 presents the results when specification (2) is estimated. The coefficient on the price index is nearly identical what was obtained in Table 4 and thus not sensitive to the inclusion of household fixed effects.

Food payments as commitment devices

Some households might prefer food payments rather than cash because – absent the sale of the transfer – food pre-commits the households' consumption of the transfer.[16] Although the data in the 2006-2014 household panel survey do not allow this to be tested formally, the

[16] Speaking about the debate regarding replacing India's food transfer system (the Public Distribution System, PDS) with cash payments, Dreze notes that one of the concerns raised by PDS participants is that "They are worried that cash can be more easily misused than food, because food can only be consumed in small quantities over time while cash is easily spent in one go". http://www.ideasforindia.in/topics/miscellany/ashok-kotwal-speaks-with-jean-dreze.html. Accessed July 24, 2018.

household survey fielded as part of the evaluation of the current (PSNP IV) phase of the program includes a question asking why households prefer food (cash). Their responses are shown in Table 6.

Consistent with the results shown in Table 5, relative prices are the dominant reasons, 59.0 and 51.1 percent, why respondents prefer at least some of their payment in food (cash). Respondents who stated that they preferred cash payments also noted the ability to exercise choice that cash provides; 22.3 percent noted that cash allows them buy foods that are not part of the PSNP payment package and 10.1 percent stated that cash payments mean that they can buy non-food items or save the money for future investments. Transactions costs (money, time) to collect payments are relatively unimportant. Consistent with the idea that food transfers are a form of commitment device, 21.8 percent of respondents who stated that they preferred food payments, did so because they were concerned that cash would be more easily misused.

6. Conclusions

Economists often default to the assumption that cash is always preferable to an in-kind transfer. Do beneficiaries feel the same way? This paper uses longitudinal household data from Ethiopia where a large-scale social safety net intervention – the PSNP operates. Even though most PSNP payments are paid in cash, and even though the (temporal) transaction costs associated with food payments are higher than payments received as cash, the overwhelming majority of the beneficiary households stated that they prefer their payments only or partly in food. However, these preferences are neither homogeneous nor stable. Higher food prices induce shifts in stated preferences towards in-kind transfers but more food secure households,

those closer to food markets and to financial services are more likely to prefer cash. Though shifts occur, the stated preference for food is dominant: In every surveyed year, the median household prefers no more than 50 percent cash, and in no year do more than 17 percent of households prefer all cash. There is suggestive evidence that stated preferences for food are also driven by self-control concerns.

These results present a conundrum for governments designing social protection interventions and for the donors that support them. As the examples in footnote 1 illustrate, it is an article of faith amongst organizations such as the World Bank that beneficiary preferences need to be taken into account when interventions are designed. But in examples such as the PSNP, such preferences skew towards food while, the Government of Ethiopia and its development partners, would prefer that cash be provided, not least because as Margolies and Hoddinott (2014) show, the implementation costs associated with cash transfers are considerably lower than the cost of providing food. That said, these results also suggest such preferences are not immutable. Ensuring that the purchasing power of cash payments keeps pace with changes in food prices and ensuring beneficiaries have access to food markets and financial services all make it more likely that the preferences of beneficiaries and program designers (and their funders) will align.

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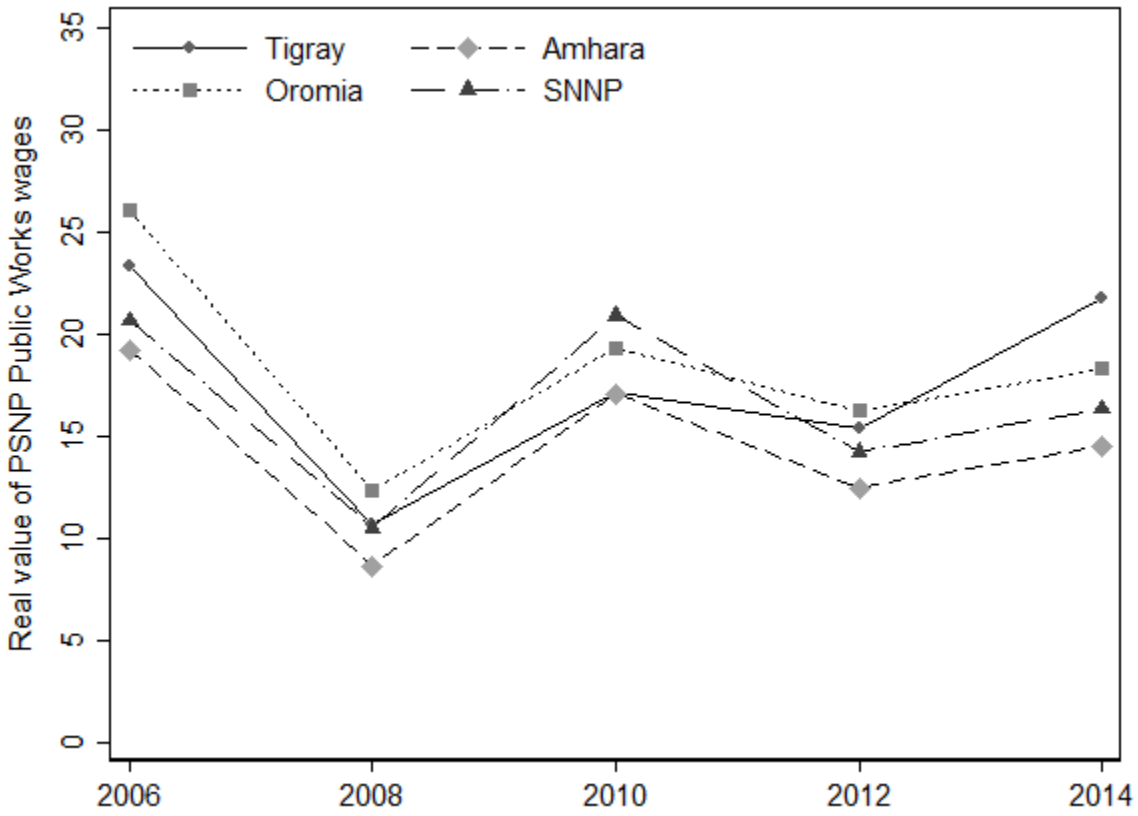
Figure 1: Real value of PSNP Public Works wages, by round and region



Source: Productive Safety Net Programme evaluation surveys 2006-2014.

Notes: Public works wages have been deflated using a food price index. This is a weighted average of prices of the 6 main cereals (maize, teff, barley, wheat, sorghum, and millet) in each community in a given year capturing both the temporal and spatial differences in price levels (see Section 2 for more information).

Table 1: Household descriptive statistics

	Mean	Std. Dev.
Dependent variable:		
Preference: 75 or 100 % food (0/1)	0.524	0.499
Independent variables:		
Food secure household (0/1)	0.370	0.483
Nearest food market is less than 3 km (0/1)	0.544	0.498
Nearest bank is less than 3 km (0/1)	0.051	0.220
Food price index	2.464	1.057
Household size	5.135	2.307
Household size squared	31.69	25.79
Head's age	49.00	15.38
Head has not attended school (0/1)	0.779	0.415
Female head more than 60 years of age (0/1)	0.084	0.277
Female headed household (0/1)	0.287	0.452
Household received no PSNP payments (0/1)	0.308	0.462
Household received only food payments (0/1)	0.089	0.285
Less than 50 % the payments were in cash (0/1)	0.105	0.307
50 % of the payments were in cash (0/1)	0.078	0.268
More than 50 % the payments were in cash (0/1)	0.111	0.314
Household received only cash payments (0/1)	0.308	0.462
Year, 2006 (0/1)	0.156	0.363
Year, 2008 (0/1)	0.173	0.378
Year, 2010 (0/1)	0.183	0.387
Year, 2012 (0/1)	0.217	0.412
Year, 2014 (0/1)	0.271	0.444
Region, Tigray (0/1)	0.258	0.438
Region, Amhara (0/1)	0.294	0.456
Region, Oromia (0/1)	0.234	0.423
Region, SNNP (0/1)	0.215	0.411

Source: Productive Safety Net Programme evaluation surveys 2006-2014.

Note: Pooled sample size is 11,989 households; 3,649 unique households. (0/1) indicates a binary (dummy) variable. Food price index is a weighted average of prices of the 6 main cereals (maize, teff, barley, wheat, sorghum, and millet) in each community in a given year capturing both the temporal and spatial differences in price levels. A household is considered food secure if they did not report problems in satisfying the food needs over the past 12 months.

Table 2: Transactions costs associated with obtaining payments: 2010, 2012 and 2014

	Food			Cash		
	2010	**2012**	**2014**	**2010**	**2012**	**2014**
The last time you received payment:						
How much time did it take to travel (one way) to pay point? minutes (median)	150	90	120	120	90	60
% of respondents who travelled to the pay point on foot	86.5	92.4	96.3	98.5	94.2	97.9
% of respondents who had to spend night sleeping at pay point	45.9	34.9	28.8	21.4	27.3	8.3
% of respondents who reported spending money on transport and accommodation	35.6	36.1	40.3	21.6	24.5	16.5
How much did you spend (birr) on transport and accommodation? (mean)	8.3	10.8	17.6	5.0	5.2	10.4
% of respondents who perceive they were treated courteously at the pay point	78.4	80.5	65.9	88.0	76.9	71.4
% of respondents who perceive they received their payment in full	72.5	72.2	60.8	76.6	68.9	63.9
% of respondents who reported being harassed travelling home after receiving payment	3.0	3.6	1.5	2.4	2.7	1.0
% of respondents who reported that payment was stolen while travelling home after receiving payment	2.7	3.3	0.4	1.3	1.5	0.5

Source: Productive Safety Net Programme evaluation surveys: 2010, 2012, 2014.

Table 3: Household payment modality preferences (%), by round

Year	2006	2008	2010	2012	2014	all years
All food	37	60	46	44	40	45
75% food; 25% cash	6	6	5	10	9	8
50% cash; 50% food	30	16	24	27	32	26
25% food; 75% cash	10	8	13	10	7	9
All cash	17	9	12	9	12	12
Total	**100**	**100**	**100**	**100**	**100**	**100**

Source: Productive Safety Net Programme evaluation surveys 2006-2014.

Table 4: Modelling household food payment preferences

	1	2	3	4
Food secure household	-0.031***	-0.031***	-0.031***	-0.033***
	(0.009)	(0.009)	(0.009)	(0.009)
Nearest food market is less than 3 km	-	-0.028***	-0.028***	-0.036***
		(0.009)	(0.009)	(0.009)
Nearest bank is less than 3 km	-	-0.036**	-0.041**	-0.062***
		(0.018)	(0.018)	(0.018)
Food price index	-	-	0.023***	0.032***
			(0.006)	(0.006)
Household size	0.017**	0.017**	0.018**	0.018**
	(0.008)	(0.008)	(0.008)	(0.008)
Household size squared	-0.001*	-0.001*	-0.001**	-0.001**
	(0.001)	(0.001)	(0.001)	(0.001)
Head's age	0.001**	0.001**	0.001***	0.001**
	(0.000)	(0.000)	(0.000)	(0.000)
Head has not attended school	-0.009	-0.009	-0.009	-0.007
	(0.012)	(0.012)	(0.012)	(0.012)
Female head more than 60 years of age	-0.023	-0.025	-0.025	-0.023
	(0.021)	(0.021)	(0.021)	(0.022)
Female headed household	0.012	0.014	0.014	0.018
	(0.012)	(0.012)	(0.012)	(0.013)
Household received no PSNP payments	0.034***	0.034***	0.032***	-
	(0.011)	(0.011)	(0.011)	
Household received only food payments	0.190***	0.186***	0.183***	-
	(0.017)	(0.017)	(0.017)	
Less than 50 % the payments were in cash	0.198***	0.196***	0.187***	-
	(0.015)	(0.015)	(0.015)	
50 % of the payments were in cash	0.196***	0.191***	0.191***	-
	(0.017)	(0.017)	(0.017)	
More than 50 % the payments were in cash	0.118***	0.116***	0.115***	-
	(0.016)	(0.016)	(0.016)	
Household received only cash payments	(reference)	(reference)	(reference)	-
Year, 2006	(reference)	(reference)	(reference)	(reference)
Year, 2008	0.212***	0.214***	0.177***	0.163***
	(0.014)	(0.014)	(0.018)	(0.017)
Year, 2010	0.016	0.023	0.003	0.028*
	(0.015)	(0.015)	(0.016)	(0.015)
Year, 2012	0.058***	0.059***	0.018	0.017
	(0.015)	(0.015)	(0.018)	(0.018)
Year, 2014	0.044***	0.047***	-0.001	-0.029
	(0.014)	(0.014)	(0.018)	(0.018)
Region dummies?	yes	yes	yes	yes
Adjusted R^2	0.170	0.171	0.172	0.153

Source: Productive Safety Net Programme evaluation surveys 2006-2014.

Notes: *** p<0.01, ** p<0.05, * p<0.1. Standard errors are in parentheses and clustered at the household level. Sample size is 11,989.

Table 5: Household fixed effects model

	1
Food price index	0.022***
	(0.008)
Household size	-0.008
	(0.012)
Household size squared	0.001
	(0.001)
Head's age	0.002***
	(0.001)
Household received no PSNP payments	0.009
	(0.014)
Household received only food payments	0.116***
	(0.021)
Less than 50 % the payments were in cash	0.078***
	(0.020)
50 % of the payments were in cash	0.090***
	(0.020)
More than 50 % the payments were in cash	0.058***
	(0.018)
Survey year dummies?	Yes
Household fixed effects?	Yes
Adjusted R^2	0.041

Source: Productive Safety Net Programme evaluation surveys 2006-2014.

Notes: *** p<0.01, ** p<0.05, * p<0.1. Standard errors are in parentheses and clustered at the household level. Sample size is 11,989.

Table 6: Reasons for preferring food or cash payments, 2018

Reasons for preferring at least part of the PSNP payment in food	Percent
With cash payment we cannot buy equal amount of grain	59.0
Cash can be more easily misused than food, because food can only be consumed in small quantities over time while cash is easily spent in one go	21.8
If the payment is in food, we spend less money and/or time to collect the payment	7.2
There are typically less delays food payment deliveries compared to cash payments	3.9
Compared to cash payments, there is less pressure to the share the food payment with neighbors, relatives or friends	3.3
Other	4.8

Source: PSNP-4 midline evaluation survey, 2018.

Note: Sample size is 2,434 households.

Reasons for preferring at least part of the PSNP payment in cash	Percent
With cash we can buy more grain	51.1
With cash we can buy other foods that are not part of the PSNP food payment package	22.3
With cash we can buy non-food items, save the money for future or invest it	10.1
There are typically less delays cash payment deliveries compared to food payments	3.6
If the payment is in cash, we spend less money and/or time to collect the payment	3.3
Compared to food payments, there is less pressure to the share the cash payment with neighbors, relatives or friends	2.1
We have difficulties to store the food payments; part of will be lost because of this	1.7
Other	5.7

Source: PSNP-4 midline evaluation survey, 2018.

Note: Sample size is 2,262 households.