Windfalls and work requirements: Evidence from a field experiment in Malawi

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Abstract: Though the differential impacts of earned and unearned income have long been of interest to economists and policymakers, the study of this question is often conflated by other differences between the income streams. We conduct a field experiment in Malawi in which we examine the differential short-term effect of earned and unearned income on the allocation of expenditures and labor supply, holding all other factors constant. All participants receive an equal size cash payment and make the same time investment; half are required to work, and half are not. We find little evidence that income source affects the allocation of expenditures across categories, but do find that the work requirement increases overall expenditures immediately following the payment. Conversely, the work requirement results in a reallocation of labor supply away from household work in the very short term.

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I. Introduction

Social protection programs offering income support are common anti-poverty tools in the developing world. Although these programs vary across contexts, they often take the form of either cash transfers given to households without expectations, or government-funded employment opportunities that require work to be provided with support.[1] These programs are well-studied in the economics literature, and there is a large body of research addressing their impacts on a range of indicators related to household and individual well-being and poverty reduction. However, very little research compares the two approaches. In this paper, using a field experiment in Malawi, we study how whether money is earned or given affects short-term patterns of expenditures and labor supply. This work is a first step toward providing policy makers with a guide for which type of program might be more appropriate for achieving their specific goals.

In standard economic models money is fungible and the source of any income should not necessarily dictate how it is spent, assuming that total lifetime income remains constant. However, economists have long understood that people do not treat all income the same. For example, unexpected or windfall income has been documented to be spent differently than people's regular income (Arkes et al. 1994; Milkman and Beshears 2009).[2] This can be explained through theories of mental accounting. Because people have different mental "accounts" for different types of goods and income, money earned in different ways can be allocated into these different categories (Thaler 1999). The difference between money earned and money given is similar; it may be allocated into different accounts based on its origin.

[1] Conditional cash transfers that require certain conditions to be met for receipt may fall in between these two types of programs.
[2] Another example is whether income is framed as a gain (bonus) or retuned loss (rebate) (Epley et al. 2006).

When economists have studied the difference between earned and unearned income they have largely focused on how earned income can affect social preferences, hypothesizing that people feel more entitlement to earned income, and thus we can expect people to act less pro-social with earned income than with unearned income. This question has been studied extensively in the lab, with findings that largely agree with this hypothesis (Cherry 2001; Cherry, Frykblom, and Shogren 2002; Jakiela 2015).[3] However, the earned/unearned distinction may affect expenditure patterns that go beyond social preferences. In particular, earned and unearned income may be spent differently because it is allocated to different mental accounts, much as windfall income may be spent differently than regular income. For example, a common hypothesis is that when people work for money they may spend it more wisely, though there is limited support for this in the literature.[4]

Income source may also affect labor supply. Of course, from a policy perspective, programs with a work requirement require working, while cash transfers do not, suggesting differential impacts on labor supply. Abstracting from these differences, the experience of working and earning a wage may also impact the type of work that is chosen by recipients. In particular, and possibly depending on the type of task assigned, earning income may change recipients' perceptions and expectations about wage work. This includes information about their own abilities, information about the nature of working for a wage, and information related to the labor market gained from interactions with other people with whom they are working. There is support in the literature for such an impact. Godlonton (2020) finds that randomly providing jobs to young men

[3] A number of studies also examine how whether the income of others is earned or unearned affects pro-social behavior. Examples include Fahr and Irlenbusch (1999), Barr et al. (2015), and Jakiela (2015).
[4] In general, there has been little research that addresses this exact question. Christiaensen and Pan (2012) find that earned income is more likely to be spent on basic consumption goods and education. However, in a review of studies, Evans and Popova (2017) find no support for the concern that unearned cash transfers increase expenditures on alcohol and tobacco.

in Malawi leads to more days worked and higher wages following the experimental work period.[5] In particular, an experience which changed a recipient's priors positively may increase the probability that they seek or engage in wage work.

We implement a field experiment in Malawi to study the differential impact of earned and unearned income on the allocation of expenditures and labor supply. Most studies that make this comparison outside of a laboratory environment conflate the earned/unearned distinction with variation in whether income is windfall or permanent and with differential time use (due to working for earned income). Our field experiment shuts down these other channels to focus explicitly on the difference between earned and unearned income.

Invited participants attended events located near their homes for which all received a 2,000 MWK payment upon arrival and were promised an additional payment of 8,000 MWK before leaving conditional on completing project activities. Participants were randomized into two groups: those who received the payment following completion of a baseline survey, and those who were required to work (in addition to completing the survey) before they were paid. Participants in both groups spent approximately the same amount of time at the event. Following the event, we conducted follow-up surveys via phone, weekly for three weeks to collect information on expenditures and labor supply.

We find that no evidence that participants in the earned income group allocated their expenditures differently across categories; expenditure patterns show no clear evidence of differential reallocation across expenditure categories relative to the allocation of expenditures at baseline. However, expenditures are significantly higher in total among those in the earned income group in the first week following the payment only. We additionally find that participants who

[5] These results are attributed to the expanded social network developed during the working period.

were assigned to the earned income group adjust their labor supply patterns in the short run; They reallocate their labor supply relative to baseline 28 percent more than those in the unearned group. These impacts are short term only, there is limited evidence of persistence in the pattern of time reallocation in labor supply in the two- and three-week follow-ups. Breaking down this reallocation result we find that in the first follow-up, they spend statistically significantly less time on household labor activities, both agricultural and non-agricultural. The coefficient on wage labor is positive, but smaller and not statistically significant. One interpretation of our results is that the experience of earning income causes participants to look for, and possibly engage in, wage labor immediately following the events. The fact that expenditures are also higher in the earned group suggests that they may be using the payment they received to "stake" their short-term job search.

The main contribution of this study is to examine if whether or not income is earned affects the allocation of expenditures and labor supply in a setting in which the source of the income, the nature of the income (windfall or permanent), and the time commitment required for the income are held constant, a question which has been addressed only sparingly in the economics literature. Our work is related to a study in Sierra Leone that compared unconditional cash transfers to cash transfers with a work requirement, in a setting in which the transfers were largely intended for conservation projects (Bulte et al. 2016). Their main finding is that the work requirements resulted in less investment in public goods, presumedly because households felt more entitlement over the funds after having worked for them. Most of the aid in this project was spent on community projects, limiting the ability to generalize to general income support type programs. In a second relevant study, Christiaensen and Pan (2012) find, using survey data from China and Tanzania, that people spend unearned income on less basic consumption goods than earned income, which is more likely to be spent on basic goods and education.

The focus on labor supply is a unique aspect of our work. Policy makers are often concerned about the impact of social protection on labor supply, and a large literature does study the impact of cash transfers alone on labor supply, finding that transfers generally have no or very small impacts (Skoufias and di Maro 2008; Alzúa et al. 2013; Banerjee et al. 2017; Baird, McKenzie, and Ozler 2018).[6] However, the specific question of how earned versus unearned income may differentially impact people's labor decisions has not been addressed. Also in Malawi, Godlonton (2020) finds that work experience affects labor supply and wages, but does not compare earned and unearned income. The closest relevant work studies welfare programs in the United States. Saez (2002) examines the optimal design of a transfer program administered through the United States tax system, and focuses on differences in labor supply responses on the intensive and extensive margins. Meyer and Rosembaum (2001) analyze tax changes that increased incentives to work for single mothers, and find that these changes are responsible for the majority of the increase in employment of these women. Reductions in welfare transfer program account for a smaller, but still important, part of this increase.[7] In general, developing countries may be quite different due to high levels of agricultural and informal employment, substantial under-employment, and tighter labor markets. We also study labor supply in conjunction with expenditures, allowing us to consider how the two may interact.

We additionally combine a laboratory-type experiment with the study of "real life" behavior following participation in the event. The experimental component of our study allows us to tightly control other common differences between earned and unearned income, while our follow-up data collection gives us insight into how behavior may be affected in a less contrived

[6] A few exceptions are Ardington, Case, and Hosegood (2009) and Sahn and Alderman (1996).
[7] Imbens, Rubin, and Sacerdote (2001) find that unearned income that comes as lottery winnings reduces labor earnings. However, they do not compare earned to unearned income, and lottery winners are not necessarily comparable to a target sample of poor households for income support.

setting. This design allows us to harness the benefits of laboratory experiments while avoiding some of the drawbacks (as described in Levitt and List 2007). We conduct our study in a developing country, specifically Malawi, a country in which social protection programs are widespread and both transfers and public works programs have been implemented (Miller, Tsoka, and Reichert 2011; Beegle, Galasso, and Goldberg 2017). Despite the importance of social protection in the developing world, most of the studies related to earned income have been conducted in the developed world (exceptions include Barr 2015, Dasgupta and Mani 2015, and Jakiela 2015).

This paper proceeds as follows. Section 2 describes the project design and data and Section 3 details the outcomes and estimation strategy. Section 4 presents the results, and Section 5 provides a discussion and concludes.

2. Project design and data

This study analyzes the differential short-term impact of receiving an earned or unearned cash payment on labor supply and expenditure patterns using a field experiment in Malawi. In this section we describe the sample, data collection, and the experimental procedures in detail.

2.1 Sample and data collection

The participants in this study were recruited from a sample of people who were listed during a survey as having transferred money to a household participating in a study of transfers and agricultural extension in rural Malawi (Ambler, de Brauw, and Godlonton 2018). Survey respondents in the Dowa and Ntchisi districts of Central Malawi were asked to list people from outside their village who had transferred money to their household and to provide a contact number for those people. The sample was defined in this way because an orthogonal treatment in the same

population was implemented to understand intra-family transfers in this population. The names were collected in August and September 2015. Following the collection of the names, initial contact was made with the participants via a short telephone survey, referred to as the "contact survey." The contact survey activities were conducted over a time period from October 2015 to January 2016. We successfully contacted 454 people and they form the base of our sample. Table 1 shows the sample size numbers for the contact survey and for all other rounds of data collection.

Using information about where the people in the sample lived, we organized events in locations convenient for the members of the sample and invited people to the events using phone calls and text messages. 72 percent of the initial sample lived in the Dowa and Ntchisi districts, and another 11 percent lived relatively nearby in the Lilongwe district. The rest of the sample was scattered across the country, and the research team worked to ensure that all participants were invited to an event. 33 events were held and 352 participants attended, representing 78 percent of the contact sample. We refer to this as the event sample. Events ranged in size from one person to 33 people, and the average (median) event size was 10.7 (7). However, the average (median) event size experienced by a participant was 18.3 (15). Events were conducted over one month, from late January 2016 to late February 2016.

An extended baseline survey was conducted during the events, covering the expenditure and labor supply outcomes to be considered in this analysis, as well as other information. Table 2 describes the sample, with demographic information for the full contact sample shown in column 1 and for the event sample in column 2. The indicators collected during the contact sample are shown for both samples, and those collected during the baseline survey are shown only for the event sample. In general, there are no important differences between the two groups, and we focus here, and throughout the paper, on those who attended an event. Participants are 36 years old on

average and 33 percent are female. 36 percent have not completed primary school, and 44 percent have completed primary but not secondary. 66 percent live in a rural area, and the average household size is 6.

Following the events, we conducted follow-up surveys by phone, every week for three weeks. Because it was conducted by phone, this survey was short and covered only labor supply, expenditures, and transfers. In each week we attempted to reach the entire sample, regardless of whether they had been interviewed the prior week. The total sample for each of the three follow-up rounds, conditional on also having attended an event, is 282 in FU1, 291 in FU2, and 272 in FU3, representing attrition rates of 20 percent, 17 percent, and 23 percent respectively. These rates are reasonable considering the short time window which was allocated to complete the surveys. Because these were weekly follow-ups, survey attempts were limited to a three-day period to ensure the data in each round covered a comparable period.

2.2 Treatment and randomization

All participants who attended an event were paid 2,000 MWK (approximately $2.75 USD) upon arrival to cover transportation and food costs. Those who stayed till the end of the event and completed all activities received an additional 8,000 MWK (approximately $11 USD). When invited to the event, participants were told they would receive a payment, but were not told how much it would be. The median monthly reported income for the sample was 40,000 MWK, so this payment represents a substantial amount of money for participants.

Randomization occurred prior to the events and was performed on the full contact sample, as it was not known in advance who would attend the events. Randomization was stratified by event. We additionally stratified by an orthogonal treatment which provided some participants

information about their family's economic situation and we control for this in our empirical specification. All participants were randomized into one of the following treatment groups:

Treatment 1: Income is earned: Participants in this group were required to work in order to receive the 8,000 MWK payment. The "jobs" involved reviewing newspaper articles, identifying those articles related to a certain theme, and then transcribing them into a notebook. The work period lasted from about 9 to 4 on average, with a break for lunch, and participants were called during that time period to complete the baseline survey. The work was time driven, in that there was no specific target that needed to be met. All participants performed the tasks, no one in attendance refused.

Treatment 2: Income is unearned: Participants in this group were not required to work to receive the 8,000 MWK payment. Their only activity was completing the baseline survey, but they were required to stay at the event for roughly the same amount of time as the earned income group.

Our principal hypothesis is that whether or not income is earned will change the way in which participants allocate their expenditures across categories and their time across different categories of labor supply. The expenditure analysis is driven by theories of mental accounting that argue that people treat different "types" of money differently. Importantly, we will consider a measure of reallocation that is agnostic about which categories people are most likely to reallocate to, as people will have different preferences. The labor supply hypothesis is suggested by the argument that the experience of working or the information learned while working will result in a reallocation of time. In general, we expect that the experience would push people towards wage work, or towards looking for wage work.

2.3 Further experimental details

The experimental intervention studied in this paper took place during the events described above. Participants were invited via phone and were told that they were being invited to a day-long event where they would complete a short survey and possibly engage in other activities. They were told that they would be compensated for attendance, but were not given the exact amount. Upon arrival at the events, participants were checked in, their identities were verified by project staff, and they were given the initial 2,000 MWK payment. Participants were then divided into two groups, without being told why, and taken into separate areas for the duration of the day. Those who were in the earned income group were informed that they were being given the opportunity to earn additional money by working, and were given the required tasks. Those in the unearned income group simply waited to be interviewed.

When all interviews were complete and when the work period had concluded participants were paid and allowed to leave.[8] This was conducted in a way such that participants from the two treatment groups did not interact, though there is no way to ensure that they did not interact following the conclusion of the event.

3. Outcomes and estimation

The treatments described in the previous section allow us to study the impact of earned versus unearned income while holding all other differences constant. For example, in many cases earned income may be part of a permanent income stream, while unearned income is temporary or windfall. The two types of income may also come from different sources, be in different amounts, and imply different time investments. Here all these factors are held equal between the two groups,

[8] At the time they were paid they were also given the opportunity to remit a portion of the payment to their family member, and the orthogonal information treatment was administered.

allowing us to focus on the differences specifically related to whether or not the income was earned.

3.1 Outcomes

The follow-up surveys asked participants to report their household's expenditures in the last seven days in ten non-food and ten food categories.[9] This is a version of a standard consumption module used in Malawi adapted for use in a phone survey that focuses only on expenses in the last seven days and uses broader categories than a standard module. It is fairly comprehensive, but may miss some larger, less frequent, non-food expenditures. It may also be more likely to miss expenditures not specifically enumerated in the listed categories. In each follow-up survey participants were also asked to report the hours they had worked in the last seven days in the following categories: household agricultural activities, household non-agricultural businesses, casual or ganyu labor, and wage labor. While meant to be inclusive we may miss activities that do not clearly fall into one of these categories, and we also do not measure leisure or other activities like cooking, cleaning, and childcare.

Our primary outcomes are summary measures of how participants reallocated their expenditures and time across categories. Because not all people have the same initial preferences and may not respond in the same way to earned versus unearned income, these summary measures will allow us to say whether participants reallocated their time or expenditures, though not how they did so. We create these measures by calculating the absolute value of the difference in the percent of time or expenditures that are in a particular category at each follow-up in relation to the

[9] The non-food categories were: charcoal, paraffin, or kerosene; cigarettes or other tobacco; candles, matches, or lighters; public transportation; transfers; education related; health related; general household expenses; personal care; agricultural expenditures. The food categories were: cereals, seeds, grain products; roots, tubers, plantains; nuts and nut flours; vegetables; meat, eggs, animal products; fruits; cooked food from vendors; milk and milk products; beverages; spices and all other food expenditures.

baseline. If a participant spent 25 percent of their reported working time in wage work at baseline and 35 percent at the first follow-up, that difference would be 10. We then add up these differences across categories and divide by two to correctly scale this measure. The final variable is the percent of their time working or expenditures that are different when comparing each follow-up to baseline. For expenditures we calculate a version of the variable that considers only reallocation between food and non-food expenditure and one that considers reallocation across all twenty categories.[10]

We also study expenditure-related outcomes in levels of expenditure. We will study food, non-food, and total expenditures in each week. In additional analysis, we will also examine expenditures in each individual category. We winsorize all the expenditure variables, by category, at the 99th percentile. Additionally, for creating the aggregate expenditure measures described above, we impute missing values of the component categories with the sample median.[11] The figures reported in Table 2 show that weekly expenditures at baseline are 24,727 MWK (approximately $34 USD) on average for non-food categories, and 8,645 MWK (approximately $12 USD) on average for food categories.

We also study analogous labor supply related outcomes. We analyze the hours worked in each labor category in each week, the total hours worked in each week, and the extensive margin equivalent for each category. The mean hours worked in each of these categories at baseline are reported in column 2 of Table 2. Household agricultural activities are the most common, followed

[10] A similar technique is used in Ambler (2015) to describe the difference between the expenditure preferences of migrants and remittance recipients.
[11] These imputations are minimal. The total expenditures variable at follow-up 1 contains 3 observations with one value imputed and 1 observation with 2 values imputed. The second follow-up contains 1 observation with 1 value imputed, and the third follow-up contains 3 observations with 1 value imputed.

by non-agricultural household businesses, wage labor, and finally ganyu labor. Participants worked an average of 44.5 hours per week.

3.2 Estimation

We estimate the difference between our two treatments by estimating the following regression model using ordinary least squares

$$y_{it} = \alpha + \beta_{earned\,t} Earned_i + \delta_t Y_{i0} + \gamma_{event} + \gamma_{info} + \gamma_{enum} + \varepsilon_{iet} \quad (1)$$

where y_{it} is each outcome for individual i at time t (follow-up 1, 2, or 3). $Earned_i$ is an indicator for being in the earned income treatment group, and $\beta_{earned\,t}$ is thus the estimated difference in the outcome between the two groups for each given survey round. Y_{i0} is a control for the baseline value of the outcome, and γ_{event}, γ_{info}, and γ_{enum} are fixed effects for event, the orthogonal information treatment, and the enumerator who conducted the payment. ε_{iet} is a robust error term, clustered by event. All regressions follow this specification with the exception of the primary reallocation outcomes, which by definition do not have a baseline value. All analyses will be conducted in the full sample of people who attended the events and then completed each specific follow-up survey. To maximize sample size, we do not restrict our analysis to a balanced panel, and thus sample size will vary across rounds. In each table, we also report the minimum detectable treatment effect (MDE) where baseline data is available.

3.3 Attrition and balance

Prior to analyzing the results of the field experiment, it is important to examine measures of internal validity. Given the multiple survey rounds, attrition is of particular concern, and as detailed in section 2, there is attrition from the contact sample to the event sample, and then from the event sample to each follow-up survey. Table 1 reports the sample size of each round by treatment group. It also reports p-values of the tests of differential attrition by treatment. First, we

find that attrition from the contact sample to the event sample is not related to treatment (p-value = 0.460, column 2), justifying our use of the event sample only for analysis. There is no reason to expect that this attrition would be related to treatment because participants only learned their treatment status once they attended an event. Next, we examine whether attrition from the event sample to the three follow-ups is related to treatment (columns 3, 4, and 5) and find that in all cases there is no evidence of differential attrition.

Next, we analyze whether the treatment groups are balanced on observable characteristics at baseline. The p-values for the tests that the means of a set of baseline variables are equal (using the same specification as described in the previous section), are presented in columns 3 through 7 of Table 2. We conduct these balance tests in each of the five samples of interest (the contact sample, the event sample, and each follow-up sample). While the treatment groups appear balanced across most outcomes, we can reject equality of means for the indicator for incomplete primary education, non-food expenditures, and total expenditures (though this is related to the non-food expenditures). We also conduct an omnibus balance test for the samples for which we have all the variables, in which we estimate our main specification, but with the treatment indicator as the dependent variable, and these baseline variables as explanatory variables.[12] We then conduct a test that the baseline variables are jointly equal to zero. Unfortunately, the individual imbalances result in a failure of the omnibus test across samples. However, we include appendix tables that include this full set of controls in all specifications and results change very little, suggesting that these differences do not drive our results.

4. Results

4.1 Expenditures

[12] We remove one of the three education indicators, total expenditures, and total time working from the list of variables for this exercise to avoid collinearity.

We now present the results of estimating equation 1, beginning with the analysis of expenditures. In Table 3 we show the results for the different expenditure outcomes in the first follow-up. The specification with full controls is presented in Appendix Table 1, and all results are robust. Columns 1 and 2 show the results for the two expenditure-related reallocation outcomes, based on food and non-food expenditures and expenditures across all categories. There is no evidence that those in the earned income group reallocated their expenditures differently than those in the unearned group. However, when examining total, nonfood, and food expenditures in levels, we find that the coefficients on all expenditures are positive, and statistically significant for food expenditures at the five percent level and for total expenditures at the ten percent level. The coefficient on food expenditures is economically meaningful, indicating that those in the earned income group spent 20 percent more on food than those in the unearned income group. The coefficient on nonfood expenditure is of similar relative magnitude, but not statistically significant (p-value = 0.152). As such, the estimates for total expenditures indicate that those in the earned income group spent 18 percent more on average in the week following the events than those in the unearned income group. The estimated coefficient is 4,926 MWK, which is a sizeable percentage of the 8,000 MWK payment received by participants (10,000 MWK when including the transport reimbursement).

In Table 4, we present the results for the second and third follow-up. There is little evidence of expenditure reallocation, with the exception of reallocation across all categories in the third week. However, that effect is small (only a 6.4 percent difference), not part of a consistent pattern, and not robust to the addition of full controls (Appendix Table 4).The coefficients in both weeks for total, nonfood, and food expenditures are all much smaller and do not approach statistical significance.

To examine these patterns more closely, we also study differential spending in each specific expenditure category for non-food items (Table 5) and food items (Table 6). Versions with full controls are in Appendix Tables 3 and 4. Given the small sample, we lack power to detect individual effects in these categories as the reported minimum detectable effects make clear, and indeed do not observe many patterns of interest across categories and weeks. However, there are two results of note in week 1. In Table 5 we observe that participants in the earned group spent more on transfers (marginally significant), and in Table 6 we find that cereals expenditures are 34 percent higher in the earned group.

The analysis of expenditures results indicates that, in our setting, people did not reallocate their expenditures differentially based on whether the income is earned or unearned. However, participants in the earned income group did spend *more* than those in the unearned group in the first week. Keeping in mind that both groups received an equal size payment, this suggests that those in the unearned group may be saving more than those in the earned group. However, it is also possible that those in the unearned group are spending the money on things that are less well measured by our survey. In general, we do not observe evidence for the hypothesis that the earned/unearned distinction drives a significant reallocation in expenditures, which is perhaps counter to the prevailing hypothesis that people who earn income should be more likely to "spend it wisely." However, the increased expenditures on cereals in week 1, which includes maize, the main staple food in Malawi, particularly given that the experiment took place during the lean season in Malawi, does suggest that some of that behavior may be occurring. Interestingly, the increased transfers, and possibly the cereals expenditures, additionally suggest that participants in

the earned group are more pro-social than those in the unearned group, which is contrary to most of the lab-based estimates.[13]

4.2 Labor supply

We now consider how the difference between earned and unearned income affects how participants allocate their labor supply. In Table 7 we present the results for each labor supply category at the first follow-up, for the extensive margin in Panel A (spent any time in the last week) and the intensive margin (hours worked in the last week) in Panel B. Appendix Table 5 presents the same results with the full set of baseline controls, and all results are consistent. Column 1 shows the results for the reallocation measure (Panel B only) and columns 2 through 6 consider household agricultural activities, household non-agricultural businesses, ganyu labor, wage labor, and all labor.

There are no statistically significant differences between the earned group and the unearned group on the extensive margin. In addition, most coefficients are small, indicating that these are not simply noisy estimates. The one exception is the coefficient on wage work, which is large at 9.6 percentage points, but not statistically significant at conventional levels (p-value = 0.12). In other words, whether or not the payment received by the participants was earned or unearned does not impact whether or not participants work in certain categories in the week following the events, though there is some suggestive evidence of an increase in wage labor.

Moving to Panel B, the measure of time reallocation presented in column 1 is statistically significant and indicates that participants in the earned income group made more changes overall to how they spent their time in the week following the events than those in the unearned group.

[13] We also separately study remittances, both sent as part of the experiment, and measured during the phone surveys. We do not detect any differences, though estimates are noisy.

The results show that those participants reallocated 7.7 percent more of their time than those in the unearned group who reallocated 27.2 percent of their time (a 28 percent difference). Keep in mind that this measure does not consider changes to overall time spent working.

We now unpack this result by turning to the total hours worked in each category. We see strong evidence of a reduction in hours spent on household work activities. Participants in the earned income group worked 3.1 hours less on household agricultural activities than those in the unearned income group in the week following the events, which is a 20 percent decrease relative the mean in the unearned income group. They also worked 3.4 hours less on household non-agricultural activities, a 28 percent decrease relative to the mean in the unearned income group. The coefficients on ganyu and wage labor are both positive, suggesting that some of the time not spent on household activities may have shifted to paid labor, however those coefficients are not statistically significant. The reported minimum detectable effects demonstrate that we are only powered to detect effect sizes for ganyu and wage labor, substantially larger than our estimates. Total time worked is lower in the earned income group (coefficient equal to -5.032) but the effect falls short of statistical significance (p-value equal to 0.136).

Overall these results show that those that worked to earn the payment made at the event made more changes to their time than those who did not need to work. They spent less time on household work activities, and possibly more time on wage labor, and less time working overall. This suggests that they may have spent this extra time looking for work, however because we did not collect information on overall time allocation, we cannot rule out that they spent more time on leisure or other activities.

Table 4 presents the same analyses for the second (panels A and B) and third (panels C and D) follow-ups. The version with full baseline controls is in Appendix Table 6. The results for both

week 2 and week 3 are not suggestive of any sustained differential behavior between the two groups. With very few exceptions, coefficients are small and insignificant, although follow a qualitatively similar pattern to the week 1 results. The primary exception is wage labor for which coefficients are positive and economically meaningful in both weeks, but statistically significant at the 10 percent level for the extensive margin in week 3 only (not robust to the inclusion of the full set of baseline controls). There may be a small increase in wage labor in weeks 2 and 3 for those in the earned income group, but we are not well powered to detect it.[14]

Being required to work for the 8,000 MWK payment given to event recipients caused participants to reallocate their time in the week following the events, spending less time on household labor activities and possibly more time on wage labor and other activities. These results are consistent with a story in which the experience of working for a wage motivated participants to seek additional wage labor. The consumption results are also consistent with this interpretation; for example, the additional expenditures could be construed as the participant using the additional money to buy themselves out of household work while they look for work and/or engage in additional leisure. However, this pattern did not last past the first week. It could be that the desired change in labor patterns was simply very short term, that the payment received at the event allowed participants some very short-term flexibility, that participants found they could not secure a job, or a combination.

5. Discussion and conclusion

In this paper we report the results of a field experiment that studies how whether a one-time payment is earned or unearned affects the short-term allocation of expenditures and time.

[14] There is also a statistically significant decrease in ganyu labor in week 2, but that is not sustained in week 3.

Though both transfer programs and income support programs with work requirements are popular in the developing world, little is understood about how recipients may react differentially to these two types of programs. Our experimental setting allows us to examine the differences between earned and unearned income while holding all other elements of the payment equal between the two groups.

We find that participants in the earned group did not reallocate their expenditures, conditional on amount spent, differently than those in the unearned group. They did however spend significantly more overall than those in the unearned group in the first week only. Though they are not differentially allocating money, the fact that they spend more provides some support for the hypothesis, driven by theories of mental accounting, the money earned may be spent differently than money that is unearned. We do find that participants who earned income allocate their labor supply differently than those in the unearned group. One explanation of these results is that they were inspired by their experience working to pursue wage labor opportunities, but quickly revert to normal activities when they are unsuccessful and have spent the cash payment they earned. However, further research that more completely documents time use is needed to definitively support this story.

These results are useful for policy makers who are considering whether work requirements are a suitable tool when designing a social protection program. The expenditure results suggest that policy makers may not need to be concerned about differential spending patterns. Indeed, we should not assume that earned income will be saved at a greater rate than unearned income. Additional research with a more exhaustive accounting of expenditures could confirm this initial finding.

If a primary policy goal is to push recipients away from household employment and towards wage labor, work requirements may help achieve that goal. However, the type of task performed may be important. For example, this project used an office-style task, compared to physical labor common in many public works programs and which may have different effects. Related, policy makers should consider whether such employment opportunities are available, as many public works requirements are created specifically because wage labor opportunities are scarce. In all cases our results are very short term, and do not last past the immediate week in which the money was received. A social protection program that made regular payments to participants may however have more sustained impacts. Research comparing the two types of programs over a longer time frame is a promising area for future research. Moreover, while the tight focus on the earned/unearned income distinction employed in this study is useful, ultimately clearly understanding how the nature of the income interacts with the time requirement inherent in public works programs is an additional next step in this research agenda.

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Table 1: Attrition

	(1)	(2)	(3)	(4)	(5)
	Contact sample	Event sample	*In event sample and …*		
			Follow-up 1	Follow-up 2	Follow-up 3
Income is unearned	227	174	136	149	137
Income is earned	227	178	146	142	135
Total N	454	352	282	291	272
Differential attrition by treatment:					
p-value from contact sample		0.460			
p-value from event sample			0.362	0.214	0.820

Notes: Author's calculations from contact, baseline, and follow-up surveys. P-values estimated with specification analagous to equation 1 in main text.

Table 2: Summary statistics and balance

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Baseline mean		*Treatment balance: P-value for Earned=Unearned*				
	Contact sample	Event sample	Contact sample	Event sample	Follow-up 1 sample	Follow-up 2 sample	Follow-up 3 sample
Age	36.547	36.476	0.605	0.854	0.377	0.916	0.998
Female	0.335	0.335	0.611	0.994	0.870	0.907	0.884
Education: None & incomplete primary	0.388	0.361	0.005	0.003	0.088	0.011	0.005
Education: Completed primary & incomplete secondary	0.412	0.440	0.387	0.077	0.569	0.206	0.271
Education: Complete secondary and above	0.200	0.199	0.068	0.207	0.309	0.321	0.328
Rural	0.650	0.659	0.527	0.860	0.912	0.668	0.515
Household size		6.074		0.370	0.952	0.044	0.322
Non-food expenditures (MWK)		24,727.298		0.022	0.043	0.008	0.014
Food expenditures (MWK)		8,644.727		0.870	0.630	0.595	0.162
Total expenditures (MWK)		33,372.026		0.027	0.048	0.010	0.009
Time on household ag activities		20.480		0.516	0.562	0.973	0.690
Time on household non-ag activities		14.378		0.591	0.929	0.622	0.988
Time on ganyu labor		2.213		0.177	0.082	0.852	0.063
Time on wage labor		7.480		0.836	0.936	0.915	0.899
Total time working		44.551		0.400	0.682	0.683	0.522
P-value omnibus test				0.014	0.049	0.019	0.000

Notes: Author's calculations from contact and baseline surveys. P-values estimated with specification analagous to equation 1 in main text.

Table 3: Expenditures: Follow-up 1

	(1)	(2)	(3)	(4)	(5)
	Expenditure reallocation food/non-food	Expenditure reallocation all categories	Total expenditures	Total nonfood expenditures	Total food expenditures
Income is earned	0.020	0.005	4926.373*	3444.446	1631.477**
	(0.019)	(0.018)	(2493.725)	(2341.830)	(712.049)
Minimum detectable effect			7879.310	7141.970	1941.081
Not earned mean	0.169	0.481	27787.800	19751.630	8036.170
Adjusted R-squared	-0.025	-0.023	0.328	0.303	0.266
Observations	280	280	280	280	280

Notes: Robust standard errors in parentheses are clustered by event. All regressions include controls for event and orthogonal information treatment. Columns 3, 4, and 5 control for the baseline value of the outcome. All money amounts are in MWK. Minimum detectable effects are calculated using baseline values and incorporate the correlation between the baseline value and the outcome variable.

*** p<0.01, ** p<0.05, * p<0.10

Table 4: Expenditures: Follow-up 2 and 3

	(1)	(2)	(3)	(4)	(5)
	Expenditure reallocation food/non-food	Expenditure reallocation all categories	Total expenditures	Total nonfood expenditures	Total food expenditures
Panel A: Follow-up 2					
Income is earned	0.009	0.022	-593.306	-406.790	208.330
	(0.026)	(0.030)	(2481.642)	(2108.741)	(680.570)
Minimum detectable effect			8226.156	7492.344	1851.070
Not earned mean	0.199	0.547	21868.919	14806.723	7062.196
Adjusted R-squared	-0.056	-0.031	0.296	0.221	0.355
Observations	289	289	289	289	289
Panel B: Follow-up 3					
Income is earned	-0.015	0.037*	756.030	762.803	95.815
	(0.018)	(0.019)	(1722.622)	(1446.975)	(487.137)
Minimum detectable effect			9169.122	8287.433	2097.387
Not earned mean	0.259	0.573	17838.444	10406.407	7432.037
Adjusted R-squared	-0.024	-0.020	0.204	0.134	0.285
Observations	270	270	270	270	270

Notes: Robust standard errors in parentheses are clustered by event. All regressions include controls for event and orthogonal information treatment. Columns 3, 4, and 5 control for the baseline value of the outcome. All money amounts are in MWK. Minimum detectable effects are calculated using baseline values and incorporate the correlation between the baseline value and the outcome variable.

*** p<0.01, ** p<0.05, * p<0.10

Table 5: Non-food expenditures by category

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Fuel	Tobacco	Candles	Transport	Transfers	Education	Health	General	Personal	Agriculture
Panel A: Follow-up 1										
Income is earned	52.551	-7.801	-44.300	759.921	780.263*	2438.459	-46.976	114.701	94.763	2201.264
	(139.364)	(9.556)	(52.240)	(570.034)	(425.846)	(1500.407)	(257.335)	(484.320)	(171.342)	(2018.078)
Minimum detectable effect	257.786	10.962	47.688	666.263	1713.950	4249.637	585.193	909.361	490.765	3139.290
Not earned mean	778.148	21.481	245.481	1710.000	2815.926	4060.667	1104.296	1550.000	1487.926	5977.704
Adjusted R-squared	0.400	0.074	0.019	0.010	-0.011	0.030	0.013	0.017	0.015	0.022
Observations	280	280	280	280	280	280	280	280	280	280
Panel B: Follow-up 2										
Income is earned	-178.751	-6.359	-12.395	73.073	493.489	3.811	26.889	-285.352	-42.542	1846.311
	(140.725)	(15.850)	(26.995)	(523.284)	(763.175)	(646.425)	(269.055)	(491.375)	(193.598)	(1179.872)
Minimum detectable effect	294.792	9.187	47.015	719.504	1808.318	5063.181	574.448	1043.364	456.925	3160.649
Not earned mean	661.486	12.297	175.642	1867.905	2875.680	2458.784	960.878	1526.284	1224.358	3056.081
Adjusted R-squared	0.101	-0.013	0.079	-0.013	-0.006	-0.006	0.042	0.049	0.034	-0.018
Observations	289	289	289	289	288	289	289	289	289	289
Panel C: Follow-up 3										
Income is earned	-211.262*	-10.633	-35.019	687.406**	657.366	-281.420	128.123	284.401	36.268	436.355
	(117.974)	(13.314)	(23.404)	(286.175)	(510.973)	(416.726)	(140.904)	(464.606)	(196.828)	(668.411)
Minimum detectable effect	279.038	8.501	50.694	693.556	1777.782	6054.711	644.373	1005.360	508.071	2959.564
Not earned mean	617.259	10.741	184.593	1212.593	1836.889	1442.815	928.074	925.926	1107.519	2140.000
Adjusted R-squared	0.107	0.023	0.076	0.069	0.039	0.076	0.122	-0.016	0.029	-0.025
Observations	270	270	270	270	270	270	270	269	270	270

Notes: Robust standard errors in parentheses are clustered by event. All regressions include controls for event, orthogonal information treatment, and baseline value of the outcome. All money amounts are in MWK. Minimum detectable effects are calculated using baseline values and incorporate the correlation between the baseline value and the outcome variable.

*** p<0.01, ** p<0.05, * p<0.10

Table 6: Food expenditures by category

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Cereals	Roots	Nuts	Vegetables	Meat	Fruit	Cooked food	Milk	Beverages	Spices
Panel A: Follow-up 1										
Income is earned	1139.124**	-33.048	-50.506	23.425	121.473	-27.343	52.630	120.257	142.956	65.630
	(546.269)	(76.964)	(53.109)	(34.859)	(196.935)	(62.294)	(66.100)	(110.146)	(126.591)	(80.578)
Minimum detectable effect	1559.645	217.536	118.195	90.017	475.457	100.597	123.668	190.773	211.683	281.206
Not earned mean	3349.067	373.185	221.185	325.746	1775.185	281.170	164.593	429.407	470.741	653.111
Adjusted R-squared	0.192	0.079	0.077	0.216	0.149	0.153	0.004	0.119	0.135	0.068
Observations	279	280	280	279	280	280	280	280	280	280
Panel B: Follow-up 2										
Income is earned	158.047	-8.976	-71.287**	-46.991	205.037	-63.898	-14.177	75.526	-13.708	53.975
	(628.002)	(81.478)	(34.098)	(32.509)	(150.771)	(41.434)	(65.038)	(104.252)	(60.078)	(110.188)
Minimum detectable effect	1579.153	201.940	123.538	85.357	483.908	96.104	116.916	170.734	212.399	284.376
Not earned mean	2891.486	325.743	168.649	322.378	1385.473	278.311	205.203	404.257	414.514	666.182
Adjusted R-squared	0.066	0.072	0.166	0.198	0.164	0.363	-0.015	0.096	0.191	0.076
Observations	289	289	289	289	289	289	289	289	289	289
Panel C: Follow-up 3										
Income is earned	317.239	-21.474	-42.743	37.808	104.617	-20.772	37.154	-31.997	-32.084	196.749*
	(343.166)	(70.336)	(35.058)	(42.634)	(167.602)	(39.133)	(60.502)	(123.713)	(101.893)	(97.136)
Minimum detectable effect	1641.567	210.108	137.707	84.079	495.638	94.349	121.569	200.114	236.358	268.976
Not earned mean	3136.037	340.000	176.222	313.407	1511.704	266.741	189.481	450.667	467.963	579.815
Adjusted R-squared	0.051	0.196	0.074	0.271	0.370	0.485	0.001	0.129	0.218	0.152
Observations	270	270	270	270	270	270	270	270	270	269

Notes: Robust standard errors in parentheses are clustered by event. All regressions include controls for event, orthogonal information treatment, and baseline value of the outcome. All money amounts are in MWK. Minimum detectable effects are calculated using baseline values and incorporate the correlation between the baseline value and the outcome variable.

*** p<0.01, ** p<0.05, * p<0.10

Table 7: Time use: Follow-up 1

	(1)	(2)	(3)	(4)	(5)	(6)
	Time reallocation	Household agricultural activities	Household non-agricultural activities	Ganyu labor	Wage labor	All work
Panel A: Extensive margin: Spent any time in last 7 days						
Income is earned		0.005	-0.030	0.027	0.096	0.012
		(0.046)	(0.061)	(0.045)	(0.060)	(0.035)
Minimum detectable effect		0.087	0.087	0.148	0.134	0.135
Not earned mean		0.748	0.474	0.185	0.259	0.904
Adjusted R-squared		0.154	-0.033	0.017	-0.008	0.058
Observations		280	280	280	280	280
Panel B: Intensive margin: Hours worked in last 7 days						
Income is earned	0.077**	-3.057**	-3.383**	0.164	1.369	-5.032
	(0.037)	(1.464)	(1.475)	(0.303)	(1.679)	(3.280)
Minimum detectable effect		4.488	6.729	2.360	4.036	8.447
Not earned mean	0.272	15.141	12.170	1.230	6.874	35.415
Adjusted R-squared	0.115	0.217	0.229	0.061	0.362	0.166
Observations	253	280	280	280	280	280

Notes: Robust standard errors in parentheses are clustered by event. All regressions include controls for event and orthogonal information treatment. Columns 2, 3, 4, 5, and 6 control for the baseline value of the outcome. Minimum detectable effects are calculated using baseline values and incorporate the correlation between the baseline value and the outcome variable.

*** p<0.01, ** p<0.05, * p<0.10

Table 8: Time use: Follow-up 2 and 3

	(1)	(2)	(3)	(4)	(5)	(6)
	Time reallocation	Household agricultural activities	Household non-agricultural activities	Ganyu labor	Wage labor	All work
Panel A: Extensive margin: Spent any time in last 7 days (FU2)						
Income is earned		0.062	-0.065	-0.129***	0.033	0.023
		(0.046)	(0.056)	(0.046)	(0.050)	(0.030)
Minimum detectable effect		0.082	0.082	0.145	0.131	0.132
Not earned mean		0.709	0.459	0.250	0.243	0.912
Adjusted R-squared		0.284	-0.006	0.070	0.068	0.065
Observations		289	289	289	289	289
Panel B: Intensive margin: Hours worked in last 7 days (FU2)						
Income is earned	0.034	-0.057	-0.128	-1.072	1.422	0.124
	(0.041)	(1.401)	(1.699)	(0.916)	(1.393)	(3.117)
Minimum detectable effect		4.795	7.024	1.992	3.795	8.806
Not earned mean	0.296	11.851	9.088	2.243	7.378	30.561
Adjusted R-squared	0.011	0.230	0.282	0.002	0.553	0.135
Observations	265	289	289	289	289	289
Panel C: Extensive margin: Spent any time in last 7 days (FU3)						
Income is earned		0.053	-0.054	-0.051	0.081*	0.014
		(0.047)	(0.047)	(0.040)	(0.045)	(0.032)
Minimum detectable effect		0.090	0.090	0.151	0.133	0.139
Not earned mean		0.689	0.474	0.163	0.237	0.904
Adjusted R-squared		0.148	0.009	-0.040	0.113	0.076
Observations		270	270	270	270	270
Panel D: Intensive margin: Hours worked in last 7 days (FU3)						
Income is earned	0.018	-0.275	-0.383	0.509	1.876	1.674
	(0.044)	(1.649)	(2.067)	(0.586)	(1.381)	(3.252)
Minimum detectable effect		4.832	6.903	2.239	4.408	8.876
Not earned mean	0.311	11.407	9.556	0.733	8.119	29.815
Adjusted R-squared	-0.003	0.191	0.115	0.101	0.482	0.077
Observations	240	270	270	270	270	270

Notes: Robust standard errors in parentheses are clustered by event. All regressions include controls for event and orthogonal information treatment. Columns 2, 3, 4, 5, and 6 control for the baseline value of the outcome. Minimum detectable effects are calculated using baseline values and incorporate the correlation between the baseline value and the outcome variable.

*** p<0.01, ** p<0.05, * p<0.10

Appendix Table 1: Expenditures: Follow-up 1

	(1)	(2)	(3)	(4)	(5)
	Expenditure reallocation food/non-food	Expenditure reallocation all categories	Total expenditures	Total nonfood expenditures	Total food expenditures
Income is earned	0.026*	0.001	5048.047*	3491.792	1556.254**
	(0.015)	(0.019)	(2720.357)	(2606.986)	(617.394)
Minimum detectable effect			7879.310	7141.970	1941.081
Not earned mean	0.169	0.481	27787.800	19751.630	8036.170
Adjusted R-squared	0.021	-0.041	0.343	0.312	0.332
Observations	280	280	280	280	280

Notes: Robust standard errors in parentheses are clustered by event. All regressions include controls for event, orthogonal information treatment, and the following baseline variables: age, household size, education, non-food expenditures, food expenditures, time spent on household agricultural activities, time spent on household non-agricultural activities, time spent on ganyu, and time spent on wage labor. All money amounts are in MWK. Minimum detectable effects are calculated using baseline values and incorporate the correlation between the baseline value and the outcome variable.

*** p<0.01, ** p<0.05, * p<0.10

Appendix Table 2: Expenditures: Follow-up 2 and 3

	(1)	(2)	(3)	(4)	(5)
	Expenditure reallocation food/non-food	Expenditure reallocation all categories	Total expenditures	Total nonfood expenditures	Total food expenditures
Panel A: Follow-up 2					
Income is earned	0.021	0.007	72.947	-167.434	240.381
	(0.020)	(0.025)	(2578.661)	(2176.528)	(747.817)
Minimum detectable effect			8226.156	7492.344	1851.070
Not earned mean	0.199	0.547	21868.919	14806.723	7062.196
Adjusted R-squared	-0.054	0.028	0.335	0.291	0.318
Observations	289	289	289	289	289
Panel B: Follow-up 3					
Income is earned	-0.015	0.020	1075.215	1105.417	-30.202
	(0.018)	(0.017)	(1789.951)	(1601.426)	(544.667)
Minimum detectable effect			9169.122	8287.433	2097.387
Not earned mean	0.259	0.573	17838.444	10406.407	7432.037
Adjusted R-squared	0.002	0.036	0.257	0.180	0.289
Observations	270	270	270	270	270

Notes: Robust standard errors in parentheses are clustered by event. All regressions include controls for event, orthogonal information treatment, and the following baseline variables: age, household size, education, non-food expenditures, food expenditures, time spent on household agricultural activities, time spent on household non-agricultural activities, time spent on ganyu, and time spent on wage labor. All money amounts are in MWK. Minimum detectable effects are calculated using baseline values and incorporate the correlation between the baseline value and the outcome variable.

*** p<0.01, ** p<0.05, * p<0.10

Appendix Table 3: Non-food expenditures by category

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Fuel	Tobacco	Candles	Transport	Transfers	Education	Health	General	Personal	Agriculture
Panel A: Follow-up 1										
Income is earned	-39.159	-12.521	-58.806	594.740	698.574	1087.787	-89.687	-111.814	-24.600	1447.278
	(142.323)	(11.371)	(54.041)	(491.383)	(412.430)	(1371.818)	(240.541)	(404.061)	(146.032)	(2022.848)
Minimum detectable effect	257.786	10.962	47.688	666.263	1713.950	4249.637	585.193	909.361	490.765	3127.977
Not earned mean	778.148	21.481	245.481	1710.000	2815.926	4060.667	1104.296	1550.000	1487.926	5977.704
Adjusted R-squared	0.271	0.104	0.068	0.078	0.033	0.291	0.087	0.101	0.120	0.128
Observations	280	280	280	280	280	280	280	280	280	280
Panel B: Follow-up 2										
Income is earned	-174.873	-6.245	-12.375	-115.689	-49.472	-621.975	-41.385	-506.703	-185.546	1535.991
	(130.780)	(16.151)	(28.938)	(479.126)	(709.993)	(630.914)	(339.585)	(409.917)	(181.702)	(1099.353)
Minimum detectable effect	294.792	9.187	47.015	719.504	1808.318	5063.181	574.448	1039.735	455.336	3149.656
Not earned mean	661.486	12.297	175.642	1867.905	2875.680	2458.784	960.878	1526.284	1224.358	3056.081
Adjusted R-squared	0.188	0.052	-0.004	0.026	0.180	0.120	0.051	0.148	0.124	0.129
Observations	289	289	289	289	288	289	289	289	289	289
Panel C: Follow-up 3										
Income is earned	-285.921**	-11.486	-35.609	608.405*	568.266	-308.262	30.356	166.621	-124.606	488.226
	(132.136)	(13.573)	(23.177)	(318.572)	(516.589)	(453.795)	(156.380)	(438.129)	(200.603)	(664.260)
Minimum detectable effect	279.038	8.501	50.694	693.556	1777.782	6054.711	644.373	1001.601	508.071	2959.564
Not earned mean	617.259	10.741	184.593	1212.593	1836.889	1442.815	928.074	925.926	1107.519	2140.000
Adjusted R-squared	0.222	0.095	0.070	0.066	0.044	0.085	0.176	0.052	0.133	0.027
Observations	270	270	270	270	270	270	270	269	270	270

Notes: Robust standard errors in parentheses are clustered by event. All regressions include controls for event, orthogonal information treatment, and the following baseline variables: age, household size, education, non-food expenditures, food expenditures, time spent on household agricultural activities, time spent on household non-agricultural activities, time spent on ganyu, and time spent on wage labor. All money amounts are in MWK. Minimum detectable effects are calculated using baseline values and incorporate the correlation between the baseline value and the outcome variable.

*** p<0.01, ** p<0.05, * p<0.10

Appendix Table 4: Food expenditures by category

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Cereals	Roots	Nuts	Vegetables	Meat	Fruit	Cooked food	Milk	Beverages	Spices
Panel A: Follow-up 1										
Income is earned	1501.131***	-86.917	-55.368	38.038	22.899	-55.997	54.842	43.604	60.506	5.833
	(463.162)	(76.069)	(49.519)	(28.760)	(143.988)	(45.194)	(67.158)	(104.288)	(108.855)	(70.462)
Minimum detectable effect	1559.645	217.536	118.195	90.017	475.457	100.597	123.668	190.773	211.683	281.206
Not earned mean	3349.067	373.185	221.185	325.746	1775.185	281.170	164.593	429.407	470.741	653.111
Adjusted R-squared	0.209	0.238	0.138	0.284	0.417	0.269	0.063	0.232	0.316	0.108
Observations	279	280	280	279	280	280	280	280	280	280
Panel B: Follow-up 2										
Income is earned	655.261	-39.198	-66.617*	-58.522*	-74.832	-75.137*	18.737	-26.290	-92.915	-0.105
	(659.734)	(91.603)	(36.567)	(32.232)	(161.973)	(36.826)	(57.012)	(77.181)	(60.241)	(95.563)
Minimum detectable effect	1579.153	201.238	123.108	85.357	483.908	96.104	116.509	170.734	211.661	283.386
Not earned mean	2891.486	325.743	168.649	322.378	1385.473	278.311	205.203	404.257	414.514	666.182
Adjusted R-squared	0.131	0.126	0.214	0.286	0.333	0.341	0.056	0.256	0.301	0.151
Observations	289	289	289	289	289	289	289	289	289	289
Panel C: Follow-up 3										
Income is earned	348.230	-89.023	-53.645	20.645	-116.950	-69.901	22.634	-81.026	-111.628	100.497
	(338.217)	(75.742)	(36.910)	(47.583)	(157.788)	(48.169)	(46.367)	(115.412)	(91.666)	(104.137)
Minimum detectable effect	1641.567	210.108	137.707	84.079	495.638	94.349	121.569	200.114	236.358	268.976
Not earned mean	3136.037	340.000	176.222	313.407	1511.704	266.741	189.481	450.667	467.963	579.815
Adjusted R-squared	0.129	0.163	0.027	0.299	0.311	0.240	0.067	0.147	0.258	0.135
Observations	270	270	270	270	270	270	270	270	270	269

Notes: Robust standard errors in parentheses are clustered by event. All regressions include controls for event, orthogonal information treatment, and the following baseline variables: age, household size, education, non-food expenditures, food expenditures, time spent on household agricultural activities, time spent on household non-agricultural activities, time spent on ganyu, and time spent on wage labor. All money amounts are in MWK. Minimum detectable effects are calculated using baseline values and incorporate the correlation between the baseline value and the outcome variable.

*** p<0.01, ** p<0.05, * p<0.10

Appendix Table 5: Time use: Follow-up 1

	(1)	(2)	(3)	(4)	(5)	(6)
	Time reallocation	Household agricultural activities	Household non-agricultural activities	Ganyu labor	Wage labor	All work
Panel A: Extensive margin: Spent any time in last 7 days						
Income is earned		-0.003	-0.032	0.036	0.057	0.003
		(0.050)	(0.055)	(0.048)	(0.051)	(0.035)
Minimum detectable effect		0.087	0.087	0.148	0.134	0.135
Not earned mean		0.748	0.474	0.185	0.259	0.904
Adjusted R-squared		0.145	0.141	0.148	0.201	0.080
Observations		280	280	280	280	280
Panel B: Intensive margin: Hours worked in last 7 days						
Income is earned	0.077*	-2.656*	-3.639**	0.361	0.888	-5.046
	(0.045)	(1.454)	(1.669)	(0.372)	(1.681)	(3.005)
Minimum detectable effect		4.488	6.729	2.360	4.036	8.447
Not earned mean	0.272	15.141	12.170	1.230	6.874	35.415
Adjusted R-squared	0.173	0.243	0.271	0.190	0.365	0.201
Observations	253	280	280	280	280	280

Notes: Robust standard errors in parentheses are clustered by event. All regressions include controls for event, orthogonal information treatment, and the following baseline variables: age, household size, education, non-food expenditures, food expenditures, time spent on household agricultural activities, time spent on household non-agricultural activities, time spent on ganyu, and time spent on wage labor. Minimum detectable effects are calculated using baseline values and incorporate the correlation between the baseline value and the outcome variable.

*** p<0.01, ** p<0.05, * p<0.10

Appendix Table 6: Time use: Follow-up 2 and 3

	(1)	(2)	(3)	(4)	(5)	(6)
	Time reallocation	Household agricultural activities	Household non-agricultural activities	Ganyu labor	Wage labor	All work
Panel A: Extensive margin: Spent any time in last 7 days (FU2)						
Income is earned		0.040	-0.060	-0.090*	0.033	0.027
		(0.046)	(0.045)	(0.048)	(0.042)	(0.035)
Minimum detectable effect		0.082	0.082	0.145	0.131	0.132
Not earned mean		0.709	0.459	0.250	0.243	0.912
Adjusted R-squared		0.302	0.181	0.103	0.286	0.109
Observations		289	289	289	289	289
Panel B: Intensive margin: Hours worked in last 7 days (FU2)						
Income is earned	0.050	-0.708	-1.261	-0.893	1.426	-1.436
	(0.040)	(1.394)	(1.568)	(0.803)	(1.440)	(2.697)
Minimum detectable effect		4.795	7.024	1.992	3.795	8.806
Not earned mean	0.296	11.851	9.088	2.243	7.378	30.561
Adjusted R-squared	0.042	0.261	0.314	0.059	0.555	0.259
Observations	265	289	289	289	289	289
Panel C: Extensive margin: Spent any time in last 7 days (FU3)						
Income is earned		0.038	-0.056	-0.031	0.057	0.026
		(0.054)	(0.045)	(0.041)	(0.043)	(0.035)
Minimum detectable effect		0.090	0.090	0.151	0.133	0.139
Not earned mean		0.689	0.474	0.163	0.237	0.904
Adjusted R-squared		0.155	0.143	0.006	0.461	0.091
Observations		270	270	270	270	270
Panel D: Intensive margin: Hours worked in last 7 days (FU3)						
Income is earned	0.024	-0.908	-1.162	0.726	1.457	0.113
	(0.045)	(1.844)	(2.111)	(0.653)	(1.486)	(3.130)
Minimum detectable effect		4.832	6.903	2.239	4.408	8.876
Not earned mean	0.311	11.407	9.556	0.733	8.119	29.815
Adjusted R-squared	0.008	0.242	0.114	0.110	0.513	0.163
Observations	240	270	270	270	270	270

Notes: Robust standard errors in parentheses are clustered by event. All regressions include controls for event, orthogonal information treatment, and the following baseline variables: age, household size, education, non-food expenditures, food expenditures, time spent on household agricultural activities, time spent on household non-agricultural activities, time spent on ganyu, and time spent on wage labor. Minimum detectable effects are calculated using baseline values and incorporate the correlation between the baseline value and the outcome variable.

*** p<0.01, ** p<0.05, * p<0.10