Pay Me Later: A Simple Employer-based Saving Scheme

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Abstract: Workers in developing countries often lack good savings options. We study a no-frills employer-based savings technology that piggybacks on existing payroll infrastructure to provide a safe and convenient savings method. Partnering with an agricultural employer in Malawi, we randomize offers to defer part of worker wages for three months, at zero interest, and receive a lump sum payout at the end of the main season. We find that this savings product has high initial take-up, high usage, and high repeat take-up. Take-up of the product changes behavior and outcomes: total savings increase over the deferral period, as does labor supply. Large purchases increase immediately after the payout, and asset holdings are higher three months later. We show that the seasonal timing is not crucial for take-up. Similarly, restrictions on access to savings has limited impact on take-up at the margin. In contrast, disbursing savings in a lump sum and automatic regular deductions are key ingredients for the product's success.

Keywords: savings constraints, income timing, commitment savings, direct deposit, labor supply
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1. Introduction

Residents of developing countries often lack access to affordable and reliable savings options that could help smooth consumption and make productive investments. For example, nearly half of all adults in developing countries do not have an account at a bank or another type of financial institution (Demirgüç-Kunt et al., 2015). This may be due to the fact that bank accounts are often costly due large fees, high travel costs, and long wait times (Beck et al., 2008; Dupas et al., 2012; Demirgüç-Kunt and Klapper, 2013; Dupas et al., 2018). In addition, informal methods such as saving cash at home or joining community savings groups are typically risky and may also have high transaction costs (e.g. due to attending group meetings and monitoring peers).

There are several barriers to increasing access to savings technology in poor countries. Traditional banks have limited incentives to expand in poor countries because potential customers tend to be poor and may want to make small transactions (Johnston and Morduch, 2008; Karlan and Morduch, 2010). Mobile money networks may have difficulty expanding because building reliable agent networks with sufficient liquidity is costly in rural areas. Accordingly, residents of most poor countries have limited access to digital savings products (Suri 2017).

In this paper, we provide a comprehensive analysis of deferred wage savings accounts, which are a cheap and underutilized savings technology that is relevant to an expanding segment of the rural population in developing countries. Specifically, deferred wage accounts allow workers to delay receipt of a portion of their regular paychecks in exchange for a later lump sum payment. By simply changing the timing of pay, workers can transfer money across time safely and conveniently, allowing them to better match income streams to liquidity needs.

Deferred wage accounts sidestep the frictions in underdeveloped financial markets by eliminating the need for local financial intermediaries. By piggybacking on the employer's existing

payroll infrastructure, this method can provide basic savings service in areas with limited access to formal bank accounts. While similar employer-based savings schemes do exist in Africa in principle, they are uncommon – and particularly rare outside of larger cities, where they might be most helpful. The particular scheme that we introduce pays out savings as a lump sum and is illiquid during the deduction period, both to reduce the cost of administration to the employer and to help alleviate behavioral constraints to saving.

We collaborated with a large agricultural employer in rural Malawi to measure the demand for and effects of deferred wages among the firm's regular, full-time employees, most of whom pluck tea for a piece rate based on the weight of the leaves they harvest. The firm offered to withhold part of workers' wages over a 12-week period during the crop's main season, at zero interest, with a single disbursement of the balance at the end. A total of 870 employees signed up for the product, and we randomly assigned 50 percent to a deferred wages treatment arm and the remainder to a control group. We use administrative data and surveys to estimate the impact of participation in the savings scheme on financial behavior and labor supply. After the main season, we carried out additional experiments and data collection to document what product features drive demand.

We find that the deferred wages scheme is popular. To offer the product, we facilitated group information sessions and offered sign-up to workers during individual meetings at the workplace. However, we did not carry out additional marketing, use nudges, or provide subsidies. We find an overall take-up rate of 50.3 percent among our target sample, a set of regular full-time employees with high attachment to the firm. Workers choose to have an average of 14 percent of their regular wages deducted during the deferral period.

Workers in the deferred wage treatment group become more productive. Participation in the savings scheme leads to an increase in average productivity (as measured in kilograms of tea plucked) of 4.6 percent. Workers classified as tea pluckers (who receive piece rates) see a 2.3 percent increase in their income from the firm. For two reasons, these impacts on labor supply are unlikely to be the result of workers mistakenly locking themselves into a lower level of current income by signing up for deferred wages.[1] First, workers were free to exit the scheme at any time without penalty or substantial administrative effort, but only 3.7 percent of participants drop out of the scheme prematurely. Second, we asked a subset of workers to make an incentivized choice about changing their deduction rates after two deductions had occurred; we find that only 8 percent wanted to decrease pay deductions, while 15 percent wanted to increase their savings contributions.

We also find that deferred wages changes the level and composition of savings. By the end of the scheme's 12-week period of deductions, treated workers had deferred an average of MK 12,000 (approximately $15.50) as part of the savings scheme, or about 40 percent of average monthly earnings. Treated workers partially substitute away from informal methods of savings, but total savings balances still increase. Just before the end of the deferred wage scheme, treated workers had increased their total savings (including informal methods) by MK 7,113 ($9.80), an increase of 24 percent over the control group mean.

Following the lump-sum disbursement of the deferred wages savings, short-run expenditures increase. The majority of the additional spending comes from increases in lumpy

[1] John (2018) conducts an experiment with commitment savings accounts and finds evidence that individuals make mistakes in contract choices. Bai et al. (2017) find similar evidence of mistakes in commitment contracts for healthcare.

purchases: storable food (e.g., maize grain) and durables (e.g., improvements to housing). These categories of spending match workers' stated savings goals measured at baseline.

We also document effects of the deferred wages program in the months after the disbursement of funds. Asset ownership is significantly higher three to four months after the payout: the treatment group's value of durable and livestock asset holdings increases by 10 percent. The increase in ownership does not appear to crowd out other types of assets such as food storage or financial savings. There are also no impacts on expenditures or other high-value purchases in the longer-run.

As a final analysis, we examine what features drive high demand for and use of the deferred wages scheme. First, we rule out that seasonality drives take-up in our context. After the main agricultural season, 81.2 percent of treatment group workers opt to sign up for a deferred wages scheme during the off-season. This sign-up rate is similar to the rate for the *next* main-season. Second, we find evidence that the lump sum payout in the scheme is important. At the beginning of the season following the initial experiment, only 36 percent of workers choose to sign up for a modified version of deferred wages that features a smooth payout option. This is significantly lower than the take-up rate for offers of the original version of the program with a lump sum payout. We also find less evidence that access restrictions matter: a version of the original scheme that has no penalty for withdrawing funds (i.e., lower commitment) has the same sign-up as the original product. Third, we find evidence that the automatic deposit feature is a key driver of the high utilization rate of the product. In a supplementary experiment, we find that requiring manual deposits at an easy-to-reach workplace location significantly reduces use of the deferred wages savings account.

Our findings contribute to a large literature studying savings products and their impact in developing countries.[2] A main innovation is that we study a formal savings option that requires no local banking infrastructure. This differs from other studies that evaluate direct deposits and default savings accounts (Brune et al., 2016; Somville and Vandewalle, 2018) or traditional savings products (Cole et al., 2011; Dupas and Robinson, 2013b; Prina, 2013; Schaner, 2016; Dupas et al., 2018). Recent work has also explored new financial products such as mobile money payments which may be an effective way to pay workers and encourage savings (Jack and Suri, 2014; Blumenstock et al., 2015; Aker et al. 2016; Breza et al., 2017; de Mel et al. 2018). In terms of product features, the deferred wages scheme differs from most products studied in that it is a direct deposit savings mechanism with a soft commitment feature.[3] Relative to prior studies of commitment savings products, we provide novel evidence of high rates of repeated product take-up. This suggests that the effectiveness of our intervention is not the result of participants committing mistakes when selecting into the scheme. This finding for a soft commitment product contrasts with John (2018) who finds that the majority of takers of a hard commitment savings account (which features monetary penalties) choose a harmful contract.[4]

This work also contributes to the literature on infrequent payments. The two papers most closely related to our work are Casaburi and Machiavello (2018) and Brune and Kerwin (2018). Casaburi and Michiavello (2018) show that dairy farmers in Kenya are willing to forgo revenue to receive some of their sales as monthly rather than as daily payments. Relative to this work, we innovate by demonstrating that participation in a deferred wage programs has impacts on worker

[2] See Karlan et al., (2014) for a review of savings behavior and products in developing countries.
[3] In contrast, a large number of studies look at savings products with hard commitments (Ashraf et al., 2006; 2010; Karlan and Zinman, 2013; Dupas and Robinson, 2013a).
[4] Similar to our findings, prior studies such as Dupas and Robinson (2013) and Karlan and Linden (2017) have shown that saving devices with soft commitment features can have impacts on investment behavior. In addition to contributing to the commitment savings literature, our study builds on work by Dupas and Robinson (2013a) and Callen et al. (2014), who find that better savings options lead to higher self-reported work effort.

outcomes such as productivity, savings behavior and asset accumulation. Brune and Kerwin (2018) find that low-wage informal workers prefer to defer wages rather than receive payment in several smaller installments. In an experiment, they also find that deferred wage payments increase take-up of a short-term artificial bond. We build on their analysis by studying the demand for and effects of deferred wages in a real world firm setting. Notably, our analysis examines impacts of voluntary sign-up for deferred wages on a wider range of outcomes and over a longer-time horizon; we also provide more evidence on the mechanisms behind the effects of deferred wage payments.

Finally, our research also contributes to the literature on behavioral biases and savings behavior. Prior research attributes under-saving behavior to biases in terms of preferences (e.g. self-control problems), expectations, and planning (Karlan et al., 2014). Even when transaction costs are negligible, we find that savings rates are much lower when workers must make manual deposits, and that effects are concentrated among workers who report low self-control on their spending behavior. This provides suggestive evidence that behavioral barriers such as present bias are important for savings behavior in our setting. Similarly, Blumenstock et al. (2018) and Somville and Vandewalle (2018) provide evidence that default assignment policies affect savings behavior partly due to self-control issues.

2. Background and Main Intervention

This study took place in Malawi in partnership with Lujeri Tea Estates, a large agricultural firm in Malawi. The target population for this intervention is the employees of the estate. Two broad categories of workers constitute Lujeri's workforce. "Pluckers" pick tea for a piece rate per kilogram of tea they harvest. They earn PPP 7 per day on average during the main season, which lasts December to April each year, and because they are paid a piece rate they have the capacity to

increase their earnings by working harder. Other workers do jobs like pruning, weeding, applying fertilizer, and monitoring and management tasks. We refer to these other employees as "non-pluckers." Non-pluckers receive fixed daily wages based on the task they are performing.[5] For all employees, Lujeri pays earnings every two weeks.

Over the course of a year, workers at Lujeri experience substantial variation in income. During the main season, income rises and falls due to variation in plant growth. Incomes in the offseason are substantially lower because tea growth is limited.[6] Thus, the main season is when workers have a relatively high demand for savings, both to smooth consumption across seasons and also to be able to make lumpy purchases of durable goods (such as iron roof sheets and other building materials) and other indivisible investments such as school fees.

In our intervention, we provided randomly selected workers with the option of receiving a portion of their earnings as a deferred lump sum payment at the end of the main season in May 2017.[7] Workers received a deferred wages account for which they determined contributions by setting two parameters for their bi-weekly take-home payment: a minimum level of take-home pay and maximum deferral amount. For example, a worker might set a minimum take-home pay of MK 9,000 per payday and a maximum deduction of MK 3,000. If he earned MK 10,000 in a given pay period, he would contribute MK 1,000 to the account and take home MK 9,000. If he or she instead earned MK 14,000, he or she would contribute MK 3,000 to the account and take home MK 11,000. Workers could only access the balance in their deferred wages account by exiting the program permanently. We explained that this process applied to cases of emergency and

[5] Non-pluckers occasionally pick tea and pluckers occasionally do other tasks. A worker's pay is based on the task she does on a specific day: if a plucker spends a day doing pruning, she gets the fixed daily wage for pruning, and if a non-plucker spends a day plucking tea, she is paid based on the number of kilograms of tea she harvests.
[6] For the same reason, Lujeri lays off some workers, while the majority of workers from the main season remain working at a reduced schedule.
[7] Over the course of the main season, the deferred wages program covered six bi-weekly payment periods starting in February 2017.

emphasized that no future deductions through the deferred wage scheme would take place after exit. However, there were no procedures in place for verifying that the reasons for exiting qualified as actual emergencies.[8]

Figure 1 provides an overview of the timing of the intervention and sample recruitment. We identified workers as being eligible for treatment based on their responses to a product interest survey that we conducted from October 31 to December 29, 2016, with a sample of 1,897 individuals. Out of those individuals, 65.4 percent of workers (N=1,240) indicated that they would be interested in participating in a deferred wages scheme. We targeted those who indicated interest in deferred wages to attempt a baseline survey and a social network survey (among those found at baseline). A total of 1,092 individuals were interviewed at both baseline and for the social network survey in January 2017. For the deferred wages experiment, we found that 78 percent (N=870) of the 1,092 individuals in the baseline survey remained interested in the deferred wages scheme.[9] This set of individuals who were still interested is our main analysis sample, and we randomly offered treatment to 50 percent of these workers.

3. Data

To study the effects of deferred wage savings accounts, we use two main sources of data for the set of workers who were included in our experiment (N=870). First, we rely on individual-level administrative data from Lujeri, which is available from January to May 2017 (the beginning and end of the main tea harvest season). This administrative data has two components. There are

[8] When filling the required exit paperwork at the firm's offices, workers often listed reasons not considered to be emergencies (e.g., wanting to finish construction of a house).

[9] We elicited this choice by telling workers that we would randomly select half of them for implementation and sign up would occur on the spot for those who expressed interest and were chosen. All workers who were chosen for implementation actually enrolled in the product.

daily attendance and activity records for all workers at the firm, which also record how much tea a worker harvested (if applicable). There are also bi-weekly payroll data that show how much workers earned, taxes paid, deductions and take-home pay. In addition, this payroll data also records the balances the workers held in the deferred wages scheme.

Second, we conducted a baseline and four follow-up surveys (FS1 – FS4) that began after randomization of the deferred wages savings accounts. Figure 1 includes an overview of the timing of data collection. As illustrated, the first two follow-up surveys occurred during the main season in February and April 2017. This data allows us to measure impacts during the deduction period of the intervention. A third follow-up survey took place in May 2017 after the lump sum payment of the deferred wages scheme. In order to study the effects of the lump sum payout over time, we partially randomized the order in which workers for the third follow-up survey. We randomized the order in which we visited workers at the 11 divisions of the estate. Within each division, we randomly assigned workers to a first wave or a second wave. The timing of the third wave of surveys is therefore largely random. Finally, a fourth follow-up survey took place in August and September of 2017 to measure impacts at some distance after the payout of the scheme.

The main objective of our experiment is to evaluate the impact of saving lump sums on earnings, spending, and other financial outcomes as well as effort at work. With this in mind, we designed our surveys to measure total expenditures, food consumption, income, transfers (i.e., loans received and credits made) and savings during the past two weeks. While our main analysis focuses on these totals, we also ask individuals to report spending and financial transactions for specific items within each category. We do this to reduce measurement error in the overall totals and to provide details about changes within the broad categories. For example, we ask about

detailed expenditures within the last two weeks on specific items such as maize, house improvements, and household purchases.

4. Empirical Strategy

Our main specification to capture the impact of deferred wages is:

$$y_{ist} = \alpha + \beta Treat_i + \delta_s + \gamma Z_i + y_{isB} + \epsilon_{ist} \quad (1)$$

where y_{ist} is the outcome of interest for individual i measured at time t in strata s. The variable $Treat_i$ is an indicator that takes the value 1 if the individual was treated by offering them the deferred wages intervention. Fixed effects for strata (divisions of the estate) are included as δ_s. We control for all the individual covariates Z_i used in the re-randomization exercise, following the recommendation of Bruhn and McKenzie (2009). Finally, we also control for the baseline level of the outcome variable y_{isB} as recommended in McKenzie (2012), wherever this variable is available. In Equation (1), our main interest is in the estimate of the parameter β, which is the intention-to-treat (ITT) effect of providing access to deferred wages.

We also conduct analyses of the effects of the treatment on measures of work effort y_{ist} (e.g., attendance or daily output) for the time period t that begins after the first contribution to deferred wages and continues until the last week of deductions during the main season. To test for dynamic effects of deferred wages, we augment Equation (1) with indicators for each week in our sample interacted with the dummy $Treat_i$ to allow for treatment effects that vary over time. These analyses include additional controls for workers' pre-experiment performance, to provide increased precision for these analyses. Specifically, we control for the following variables for the period from October 3 to January 13: the mean, standard deviation, 25th, 50th, and 75th percentiles

of their daily KGs of tea plucked (including days with no tea plucking as zero KGs), as well the share of work days they attended work and the share of work days they plucked tea.

5. Main Results

5.1 Deferred Wages Take-up, Intensive Margin Utilization, and Drop Out

Panel A of Table 1 shows interest in the deferred wages scheme at different stages of the sample selection process. As described in Section 2, we completed a baseline and social network survey with 1,092 workers who expressed initial interest in the deferred wages scheme. In this survey, we found 79.7 percent (N=870) workers remained interested in the program at this stage. We made offers for sign-up to a pre-randomized set of workers.[10] Overall, the take-up rate was 52.1 percent (the 65.4 percent interested during info sessions multiplied by the 79.7 percent interested during the baseline survey). Our final experimental sample is composed of the workers who indicated they were still interested in the product during the offer visit in January 2017. That sample comprises 870 workers (438 and 431 in the treatment and control groups, respectively).

Table 1 also shows summary statistics for choices in the deferred wage program. Treated workers choose two thresholds for the deferred wages scheme. The minimum take-home pay indicates how much cash they want to take home on given payday before there are any deductions for the deferred wages scheme. The maximum deduction sets an upper limit on the amount of money deducted from a given paycheck.

Panel B of Table 1 shows that the average threshold for the minimum take-home pay and maximum deduction are MK 8,239 and MK 2,832, respectively. The actual amount deducted

[10] We randomly assigned workers to treatment and control groups using the initial sample of 1,182 workers who had expressed interested in the deferred wages scheme and participated in the baseline survey. In this sample, all of the workers who had expressed interest and were assigned to the treatment group subsequently enrolled in the deferred wages scheme during the actual season.

depends on the workers' level of earnings from the firm in given pay period. During the deduction period, workers earn MK 14,555 on average in income from the firm. The resulting average contributions to the scheme are MK 2,056, which is 14 percent of average earned income for the sample.[11]

Figure 2 shows how account balances in the deferred wage account changes over the course of the season. The graph shows that over six pay periods workers steadily accumulate savings in the scheme. By the sixth pay period – the final pay period before the savings are disbursed – median savings reached about MK 12,000. Balances drop to zero for the following pay periods as funds are disbursed.

Finally, Table 1 shows that there was minimal attrition from the treatment group. During the deduction period, workers could only access their savings in the case of an emergency (which they had report in person at the division office). Anyone who pursued this option was required to exit the program, and their balance would pay out at the next payday (typically between 1 and 3 weeks). In the sample, only 16 workers out of 438 in the treatment group (3.7 percent of treated workers) exited.

5.2 Impact of Participation in the Deferred Wages Scheme

5.2.1 Work outcomes from administrative data

We present effects of the deferred wages scheme on work outcomes based on the firm's administrative data covering the deductions period of the main season (February to April 2017). Specifically, we focus on daily productivity and attendance, as well as effects on income and savings (with the firm) from bi-weekly payroll data. We use two specifications for this analysis. First, we estimate the average treatment effect based on Equation 1. Second, we augment our base

[11] The vast majority of treated workers hold a positive balance during the wage deferral period. Only five percent of the treatment group holds a zero balance for the entire season.

specification by interacting the treatment indicator with two separate indicators for whether a worker was classified as a plucker or non-plucker during our sampling procedure (based on data available before treatment was assigned).[12] The motivation for this analysis is that pluckers receive piece-rate earnings whereas non-pluckers work fixed hours for a fixed wage. This implies that only pluckers can adjust their productivity in meaningful and measurable ways. Approximately 77 percent of workers in our study sample are pluckers.[13]

Column 1 of Table 2 shows that the treatment increased average worker productivity by 1.6 kg over a control mean of 34.8 kg (4.6 percent). As expected, this effect is concentrated among pluckers. Column 4 shows that the increase in productivity is also associated with a MK 382.2 (2.3 percent) impact on earnings. These results for worker effort are consistent with Callen et al. (2014) who provide evidence that increased access to standard savings accounts has positive impacts on labor supply.[14]

In line with the choices in Table 1, the treatment group saved about MK 2,040 in deductions per two-weekly pay period. Again, this amount represents about 14 percent of total income earned from Lujeri. Column 10 of Table 2 shows that the point estimates for treatment effects on deductions are almost identical for pluckers and non-pluckers.

5.2.2 Deduction period survey data

Next, we examine survey outcomes during the deduction period to shed light on whether and how workers changed their financial behavior in response to participating in the deferred wages scheme. We conducted two rounds of surveys (FS1 and FS2) during the deduction period

[12] This specification includes main effects for whether a worker is a plucker or non-plucker, although we do not report these estimates.
[13] Our pre-treatment plucker classification is highly predictive of working as a plucker during the experiment. Pluckers spend 77 percent of all working days during the experiment plucking tea and harvest an average of 43.6 kg of tea per day, whereas non-pluckers pluck tea just 5 percent of the time and harvest an average of 2.6 kg of tea per day.
[14] Callen et al. (2014) explain the relationship between financial products and labor supply in terms of changes in the effective interest rate on savings.

(February to April 2017). In the analysis, we pool observations across the two rounds for flow variables (e.g. expenditures) in order to improve precision. Note that stock variables, (e.g., savings balances), were only collected at the second follow-up, which occurred the end of the deferred wages deduction period.

Table 3 presents the effects on savings behavior during the deduction period. In the 14 days prior to the interview date, we find that saving through the scheme reduced the rate of deposits into financial savings other than through the savings scheme by 7.4 percentage points, relative to a control-group mean of 70.3 percent. Most of this reduction occurred because of substitution away from informal methods. There is a negative effect of 1.6 percentage points on the likelihood of making a deposit into formal savings. Formal savings are uncommon in this population, with only 3.7 percent of control group workers making any deposit into a formal account. For informal financial savings, we see a much larger drop of 7.0 percentage points. This is driven by a 6.2 percentage point reduction in the probability of contributing to an informal savings group.

Columns 5-11 in Table 3 present savings balances as measured at the second follow-up, which occurred shortly before the end of the deferred wages deduction period. While balances in savings groups and all informal financial savings are lower in the treatment group, the differences between study arms are not statistically significant. The treatment has a statistically significant negative effect on the value of stored food (another form of informal savings). Taken together, overall informal savings are lower in the treatment group by MK 3,595. On net, the treatment increased total savings balances at the second survey by MK 7,133, which is an increase of 24 percent over the control-group mean.

Table 4 presents treatment effects on expenditures during the deduction period. Despite pooling observations from the first two follow-ups to increase precision, our power to detect effects

on expenditures is limited. Across major categories, the coefficients on the treatment indicator are relatively small and effects are not statistically significant. In Column 1, the 95 percent confidence interval for the impact on total expenditures ranges from MK -1,366 to MK +1,951. Relative to the control group mean, this implies treatment effects of -7.2 and +10.3 percent, respectively. As such, we can only confidently rule relatively large negative effects on expenditures.

We also do not find strong evidence of impacts on large purchases during the past 30 days. The effect on the rate of "large" purchases over MK 5,000 in the past 30 days is not statistically significant, although the coefficient on this outcome is negative. Similarly, the effect rate of making even larger single purchases above MK 10,000 is not statistically significant, and the estimated coefficient is small, at about half a percentage point.

In summary, the analysis of surveys during the deduction period showed total savings increase significantly for the treatment group despite some substitution away from informal methods. Some of this occurs because pluckers workers (who work for a piece-rate) have significantly higher earnings. At the same time, one puzzle is that expenditures did not detectably decrease despite the increase in savings. In supplementary analyses, we also find that loans and transfers were unaffected by the treatment (results available on request). There are two potential explanations for this pattern of results. First, it is possible that limited power and measurement error prevent us from detecting a true decrease in total expenditures. In line with this explanation, the lower end of the confidence interval on the expenditures effects is consistent with the effects we would have expected to see given our estimated effects on worker incomes and savings balances.[15] Second, we may have mismeasurement of savings balances for the treatment group,

[15] The estimated effects on savings and income would imply an approximate decrease of expenditures of MK 1,150, while the lower bound of the confidence interval on the expenditures effect is a decline of MK 1,366.

and the balances are in fact smaller. This explanation is less likely since our savings data is based partly on administrative records for deferred wage account.

5.2.3 Use of funds following deferred wages payout

We conducted a third survey round (FS3) after the full disbursement of the deferred wages, which occurred on May 6. The goal was to understand how workers spent the lump sum. We anticipated that most spending would occur immediately after the payout, and the survey design reflects this prior. To improve precision of flow measures like expenditures, changes in savings, and transfers, and to focus measurement on the post-disbursement period, the recall period for the surveys conducted in the first 14 days after the deferred wages payout was set to cover the day of disbursement and the following days until the day of the survey date. For surveys conducted more than 14 days after the disbursement we revert to the 14-day recall window used in the preceding survey rounds.

We conduct separate analyses of the outcomes collected in the third follow-up for those interviewed within 14 days of the scheme payout (May 6) and for those interviewed afterward. The reason is to facilitate interpretation of the result given the differences in recall period. Note that the timing of the surveys is plausibly exogenous because we explicitly randomized the timing of interviews (see Section 3 for details).

Table 5 provides a broad overview of the effects of deferred wages on financial behavior following disbursement. Panel A shows that total expenditures significantly increased by MK 5,728 in the 14-day period immediately following the scheme payout. The coefficients on savings, net loans given and net transfers made are also positive; however, only net loans made is statistically significant (at the 10 percent level).[16] Panel B shows that there is no detectable

[16] In Panel B of Table 5, we also find a statistically-significant effect ($p<0.05$) effect on net loans given for workers who interviewed more than 14 days after the deferred wage payout.

treatment effect on spending for the portion of the sample that we interviewed at least 15 days after the lump sum payout. Overall, the pattern of results suggests that workers use funds shortly after disbursement of the lump sum and revert to financial behavior that matches the control group quickly.

Columns 1-8 of Table 6 show results for more detailed measures expenditures. In Panel A, we find that expenditures in major spending categories (i.e., food and durables) increased in the period immediately following the payout. Notably, spending significantly increased in the sub-categories that respondents had self-reported as savings goals at baseline: food for storage (in particular maize grain) and house improvements. Columns 9 and 11 show that the incidence of large single purchases over MK 5,000 and over MK 10,000 increased. The total amount spent on single purchases greater than MK 5,000 also increased, indicating that treatment caused respondents to use the lump sum disbursement of savings to buy in bulk or buy durables. The effect on the sum of purchases greater than MK 5,000 accounts for two thirds of the increase in total short-run spending. Similar to the results for broader categories in Table 5, Panel B shows that there are no detectable impacts on major categories of spending for workers interviewed at least 15 days after the deferred wages payout.

5.2.4 Impacts on longer-run outcomes

About four months after payout of the deferred wage scheme, we conducted a fourth survey round (FS4). The goal was to understand longer-run downstream impacts with a focus on testing whether treated workers had more assets. During the baseline survey, substantial fractions of the sample indicated that their savings goals included building a house (24 percent), purchasing a household asset (15 percent) and making other house-related investments (14 percent).

Table 7 reports results for treatment effects on the value of assets and an index measure of asset holdings.[17] Treated workers have MK 11,326 and MK 7,430 more in durable assets (including livestock) and house materials, respectively. The effects are large: relative to the control group mean, the point estimates represent increases of 10 and 42 percent for all durables and house materials, respectively. The index-based measure of asset holdings also shows increases in asset holdings; expressed as a fraction of the control-group standard deviation, the effects are somewhat larger than those for the measure of the value of assets.

Table 8 shows estimated impacts on additional measures of assets, savings and expenditures four months after the end of the deferred wages scheme. The point estimates are generally small and not statistically significant. The exception is that we detect a MK 1,230 increase in the value of loans given for the treatment group. Overall, we conclude that the program appeared to have strong impacts on assets, with little evidence of longer-lasting impacts on other types of financial behavior.

6. Explaining Take-up and Utilization of the Deferred Wages Scheme

In contrast to most prior studies of savings products in developing countries, our intervention has high take-up and usage within the treatment group. For example, Dupas et al. (2018) study basic bank accounts in three countries and find that less than 20 percent of treated households in each country make five or more deposits. Karlan et al. (2014) note similarly low usage rates in evaluations of other types of savings products.[18]

[17] We collected asset data based on an itemized list of 54 different household and productive types of assets and seven types of livestock. Each asset index is a weighted average of the numbers of assets owned, where the weights are the first principal component of the number of items owned in the control group. The index approach was specified in our pre-analysis plan as a way to reduce measurement error; we present the values as well for ease of interpretation.

[18] Two notable exceptions are work by Dupas and Robinson (2013a) and Prina (2015). Dupas and Robinson covered bank account fees and helped people open accounts, finding a take-up rate of 87 percent with 37 percent of people making more than one deposit; average weekly deposits averaged 12 percent of weekly income. Studying a no-fee

We conducted several supplementary experiments to understand the relationship between features of the deferred wage scheme and the high take-up and usage rates that we observe.[19] First, the timing of the scheme could be important because it coincides with the tea production's main season, and the payout occurs at the beginning of the offseason. Workers may want to use their deferred wages to smooth liquidity between periods with relatively higher and lower income streams. To examine the importance of timing, we offered treatment workers from the initial experiment the opportunity to sign up for the deferred wages scheme again. We made these offers at the end of the interview for the fourth follow-up survey (FS4) visit in August and September of 2017. We offered workers the chance to participate in two different "cycles" of the scheme (workers had the choice to participate in either one, both or none). The first cycle provided deferred wages during the 2017 off-season, and the second cycle covered the 2018 main season.

Table 9 shows the sign-up rates in each of these additional cycles of deferred wages. If the timing of the deferred wage program were important, we expect to see different take-up rates. The take-up rates were 81.2 and 78.0 percent in the 2017 off-season and 2018 main season cycles, respectively. We fail to reject the hypothesis that these take-up rates are equal with p-value < 0.18. This suggests that seasonal timing is not an important feature driving take-up and use of deferred wages in our context and makes it unlikely that participants of the initial experiment during the 2017 main season signed up in order to smooth consumption between main- and off-season.

Second, we conducted a choice experiment to examine the importance of two additional features of the scheme. Since the original scheme disbursed funds in a lump sum, the scheme can

savings account, Prina found that 84 percent of those offered took up the account, and 80 percent made more than one deposit. The average weekly amount deposited was about 8 percent of average weekly income among those who were offered the account. Both studies find usage numbers comparable to our setting (an average 14 percent of income deposited among the about 50 percent who signed up for the scheme).

[19] Figure 4 provides a timeline for each of the additional experiments that we conduct after the original deferred wages scheme where deductions occurred from February to April 2017.

help workers who face constraints that prevent them from savings for a large purchase. In addition, the deferred wage scheme is a soft commitment device since workers can only access their funds for "emergency" withdrawals if they are willing to stop participating in the scheme. Workers may demand commitment as a means of overcoming present bias.

At the beginning of the next agricultural season, we provided a new sample of workers with offers of the original deferred wage scheme against two modified versions. Under "Modification 1," workers would receive six payments in two-week intervals after the end of the deductions period. Under "Modification 2," workers could withdraw accumulated funds at any point during the deduction period. Note that withdrawal was not immediate nor completely frictionless in this option: participants would have to give at least notice one week in advance by signing a request form at the division office and funds would be disbursed through the regular, fortnightly payroll. We excluded both treatment and control workers from our main 2017 experiment from recruitment for this follow-up experiment, but selected workers using a similar process to the one for the main experiment. Our sample included 542 workers who we interviewed and provided an incentivized offer to participate in one of the versions of the deferred wages schemes.[20]

Table 10 reports take-up rates when the new sample of workers received an offer to participate in one of the three versions of the deferred wage scheme in 2018. For the original version of the scheme, the rate was 55.9 percent. This is significantly higher than the take-up rate of 36.2 percent for the smooth payout (Modification 1) version of the deferred wages scheme. This

[20] We randomized the order in which products were offered to each worker. Workers had a simple choice between participating in the offered scheme or no scheme during the season. For first offer, we informed workers that their choice would be implemented for one randomly selected survey participant. The second and third offers were hypothetical questions. We only use the first offer because it was incentivized and because the responses are not subject to ordering effects.

pattern provides strong evidence that workers value the lump sum payout in the original deferred wage scheme. We find that 51.8 percent of workers choose the version of the program with less commitment (Modification 2). This rate is statistically indistinguishable from the take-up for the original version of the program.

Our third follow-up experiment addresses the possibility that workers could value the automatic deposits in the deferred wages scheme because this feature lowers transaction costs and reduces self-control issues. In the scheme, workers make an allocation once, and funds are automatically set aside each payday. This feature might be important for present-biased workers who are aware that they will fail to set aside funds even if safe storage options with low transaction costs are available.

To study automated deductions, we implemented an experiment with a new sample in the 2018 season. We targeted 186 workers in one of the eleven divisions of the prior experiment, excluding workers who were part of the earlier study. We randomly assigned workers to two groups. One group of workers received an offer to participate in the original version of the deferred wages scheme. The other group of workers could opt into a version of the deferred wage scheme that required manual deposits. In this experiment, all workers receive an offer to defer part of their wages, but "treated" workers must make a manual deposit. Manual deposits required workers to give money directly to an agent of the research team. The location of deposits was easy-to reach: workers made deposits at a station next to the division office where the firm pays out the workers' wages. For workers who received the standard deferred wages offer, the take-up rate was 51 percent. Among workers who received the variation with manual deposits, 48 percent signed up for the program. These rates are similar to the take-up for the initial deferred wage scheme offered in 2017.

Table 11 reports differences in savings behavior between workers offered the original (automatic) and manual deposits versions of deferred wages scheme. Workers who received an offer that included manual deposits are 30.3 percentage points less likely to make at least one deposit during the six pay periods of the scheme. This compares to the mean deposit rate of 51 percent for those who received offers to use the original deferred wages scheme. (Note that the 51 percent rate reflects that all workers who signed up for the original version made at least one deposit.) In addition to reductions in overall participation, Columns 2 and 3 show that manual deposits significantly reduce the number of deposits by 1.85 and the account balance by MK 3,516. These effects are all large relative to the mean outcomes in the automatic deduction group.

These results are consistent with the idea that present bias and self-control issues hamper savings behavior for workers in our sample. Table 12 provides further support for this hypothesis by examining heterogeneity in the effects of the manual deposit feature on deferred wages balances. Specifically, this model adds interactions between the indicator for whether a worker had manual deposit offer with indicators for self-reported feelings of regret in consumption choices.[21] We also include interactions between indicators for manual deposit and a measure of whether the worker faced kin taxes.[22] In Columns 2 and 4, the omitted group in the specification are workers who have the highest self-report level of regret. The results from these models show that high-regret workers save significantly *less* when they are required to make manual deposits.

[21] We asked the question: "Which of the following statements would best describe your situation. When you buy things: a) you usually regret buying them afterwards because you did not think enough about the purchase beforehand and you bought the item on impulse; b) you sometimes regret buying them; c) you rarely regret buying them."

[22] We measured kin taxes by asking the following question: "If you had the choice between receiving an unexpected gift of MK 5000 privately without anyone knowing that you received any money *or* receiving MK 8000 in front of everybody at the office during payday, which one would you prefer? a) 5,000 privately; b) 8,000 publicly." This question was motivated by evidence that publicly-received money is more likely to be taxed by kin (Goldberg 2017) and that people are willing to forgo part of their earnings in order to hide money from kin (Jakiela and Ozier 2016).

The estimates for the interaction terms show that manual deposits do not have the same negative impacts for low-regret workers.

7. Conclusion

For workers in developing countries with seasonal incomes, saving to purchase durable goods or smooth consumption is difficult due to a lack of good savings options. We study a no-frills employer-based savings technology that piggybacks on the existing payroll infrastructure to provide a safe and convenient way to save for lumpy expenditures. Collaborating with an agricultural employer in Malawi, we offered workers the opportunity to defer part of their wages for three months at zero interest. These savings would pay out as a lump sum at the end of the main agricultural season.

We find that this savings scheme is popular, with high take-up and usage even among a population unfamiliar with this new product. Participants substitute away from informal savings, increase total savings and make more lumpy purchases. We also find that the scheme increases labor supply, Four months after the savings scheme ends, we find positive impacts on household assets.

Because logistical hurdles are low, administrative costs are minimal, and workers increase their productivity, it is an open question as to why the firm was not already offering this savings product. Our analysis rules out that workers use deferred wages as a result of mistakes. A possible explanation may lie in the speed of technological diffusion. The introduction of digital payroll systems (which reduce the costs of changing payment timing) is relatively recent. In addition, the potential effects of the scheme on the firm's profit are likely of lower order than more basic interventions and management improvements.

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Figure 1. Timing of intervention and data collection

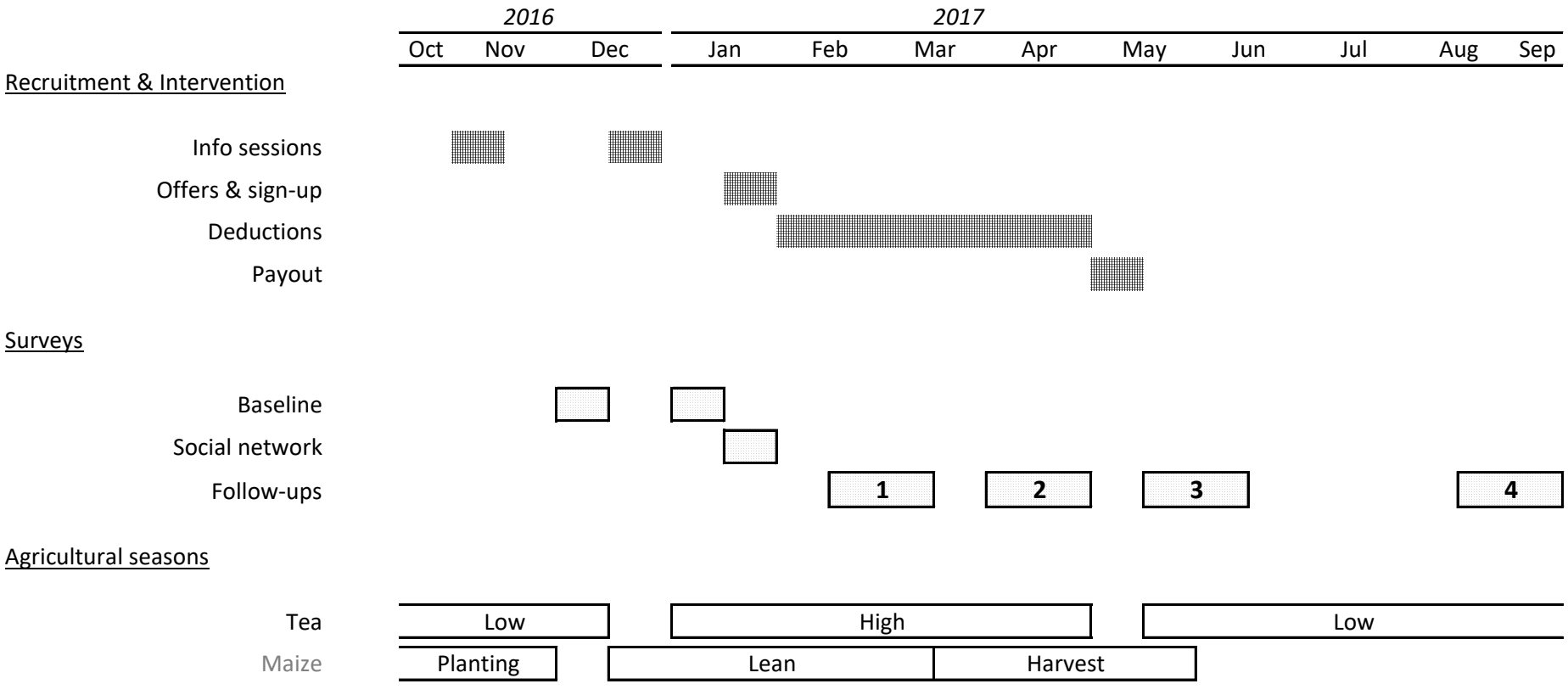


Figure 2. Study Sample Recruitment

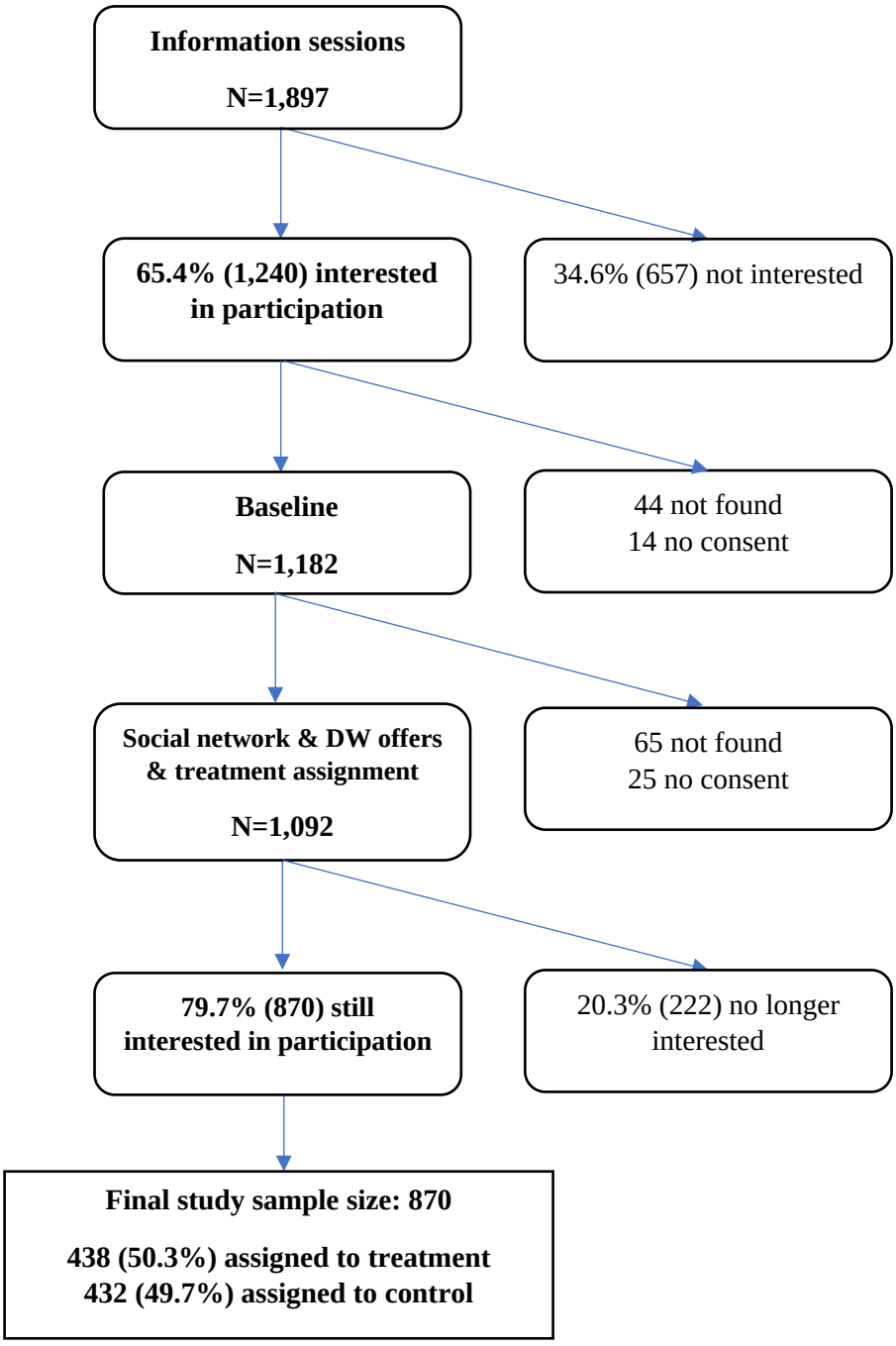
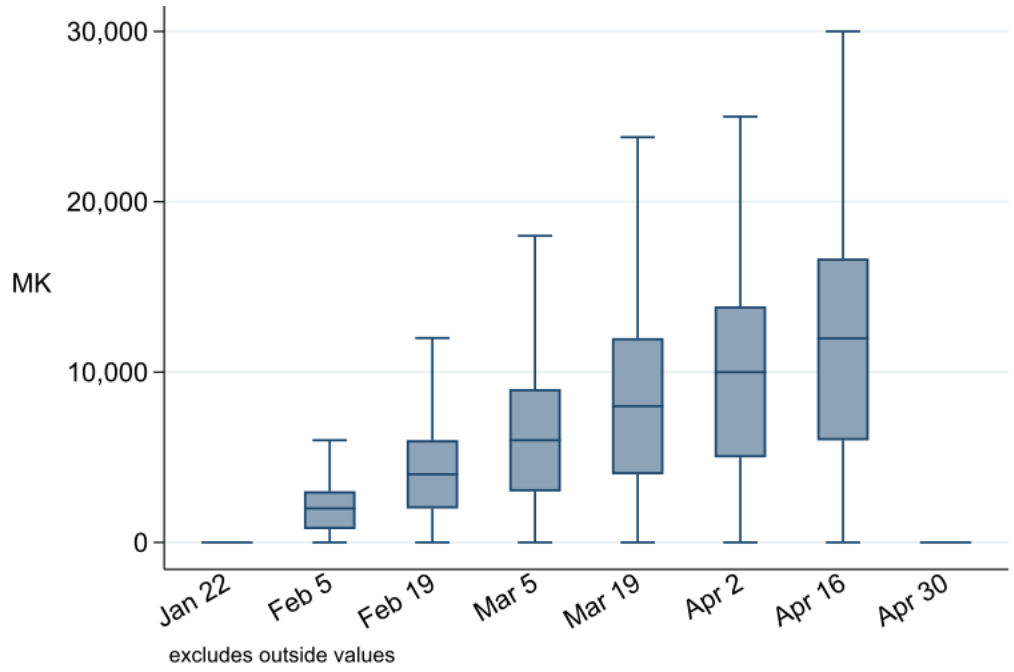


Figure 3. Balances in deferred wages scheme over time



Notes: Graph shows a box plot of accumulated balances in deferred wages scheme at two-weekly paydays during the 2018 main season. Balances are in Malawi Kwacha, $1 equals approx. MK 750 at the time of the experiment. Deductions from incomes were made over the course of six paydays (Feb 5 through Apr 16) with payout on the seventh (Apr 30). The boxes show the locations and distance between first and third quartile. The whiskers show the data's closest values inside Tukey's fences.

Figure 4. Timing of additional experiments

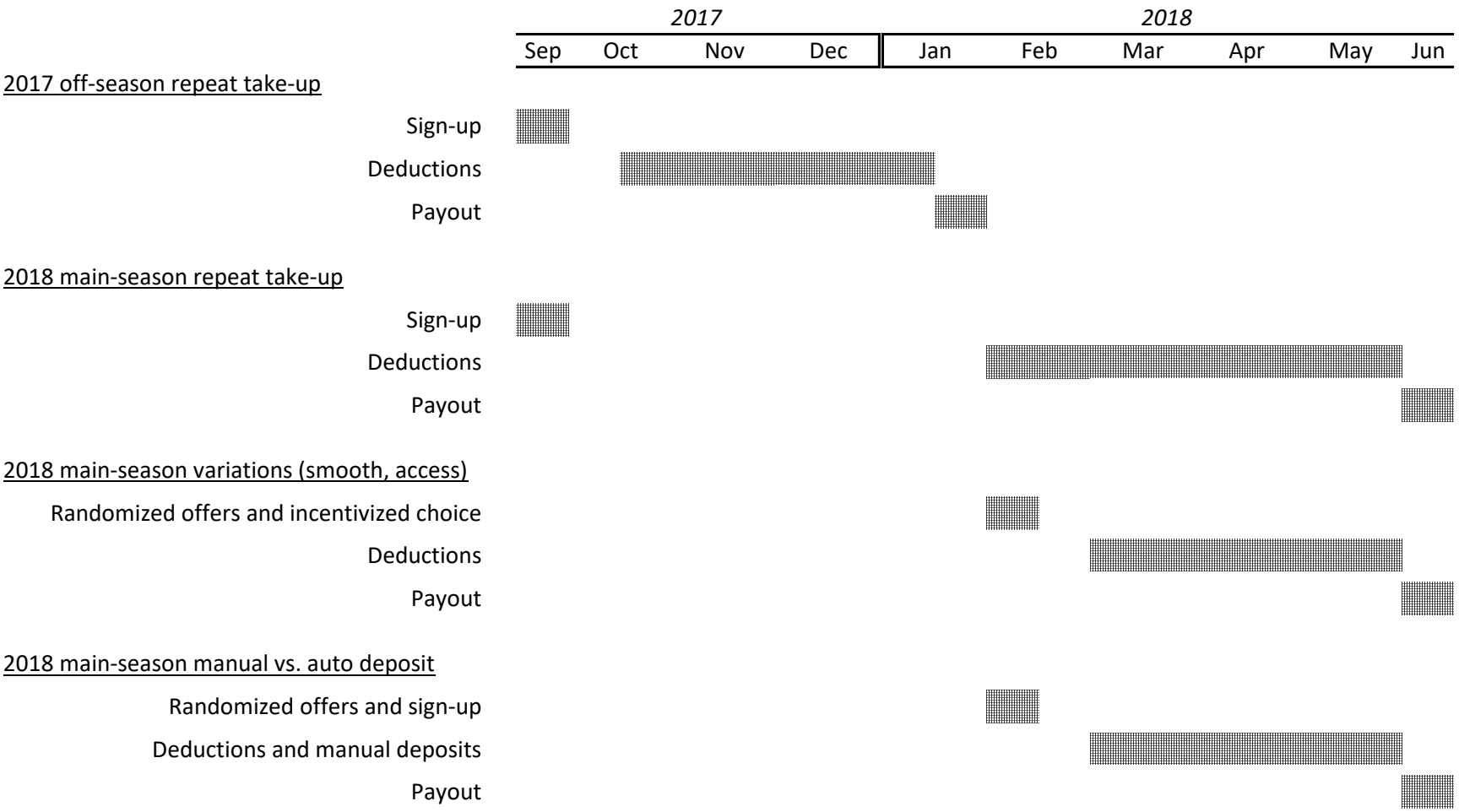


Table 1. Deferred Wage Scheme Take-up and Product Use

	Obs.	Mean	SD
Panel A: Take-up and final sample selection			
At information session: Interested in DW (1/0)	1,897	0.654	0.476
Found for baseline and offer stage: Interested in DW (1/0)	1,092	0.797	0.402
Panel B: Treatment group intensive margin take-up			
DW min take-home [MK]	438	8,239	4,971
DW max deduction [MK]	438	2,832	1,395
Average two-weekly income from firm	437	14,555	2,916
Average two-weekly DW deduction	437	2,056	1,387
Average share deductions/income	436	0.140	0.095
Early exit	438	0.037	0.188
DW balance before disbursement	437	12,079	8,517

Notes: Panel A provides statistics on expressed interest in participating in the deferred wages scheme at the Lujeri Tea Estates. Panel B provides statistics on product choices for the individuals that we randomly assigned to the treatment group, which had access to the deferred wages savings accounts in 2017.

Table 2. Impacts of the Deferred Wages Scheme on Work Outcomes (February-April 2017)

	(1)	(2)	(3)	(4)	(5)	(6)
	Daily output [kg]	Daily output [kg]	Income earned [MK]	Income earned [MK]	DW deduction [MK]	DW deduction [MK]
Treat	1.645**		216.7		2,039***	
	(0.786)		(155.3)		(64.32)	
Treat x Plucker		1.772*		328.2*		2,032***
		(0.943)		(171.7)		(74.45)
Treat x Non-Plucker		0.831		-136.1		2,068***
		(1.043)		(352.1)		(128.6)
Worker-day level	X	X				
Worker-pay-period level			X	X	X	X
Observations	63,103	63,103	5,214	5,214	5,214	5,214
R-squared	0.370	0.370	0.226	0.226	0.491	0.491
Mean in Control						
All	34.79		14,091		0	
Pluckers		44.73		14,079		0
Non-pluckers		2.568		14,131		0

Notes: All results are based on administrative data for workers at the Lujeri Tea Estates covering the months of the deductions period for the deferred wages scheme (February to April 2017). We report robust standard errors in parentheses. Statistically significance is denoted by *** p<0.01, ** p<0.05, * p<0.1.

Table 3. Impacts of the Deferred Wages Scheme on Savings Outcomes (February-April 2017)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	Made any deposits in past 14 days to any…				Savings balances at Follow-up 2 [MK]						
	…non-DW financial savings	…non-DW formal savings	…informal financial savings	…savings group	Total	Formal	Deferred wages	Informal	Food storage	Informal financial	Savings groups
Treat	-0.0737***	-0.0156*	-0.0698***	-0.0616**	7,113***	10,915***	11,272***	-3,595*	-2,247**	-1,292	-313.1
	(0.0252)	(0.00854)	(0.0252)	(0.0278)	(2,376)	(586.5)	(389.4)	(2,124)	(941.7)	(1,340)	(796.1)
Source	Surveys	Surveys	Surveys	Surveys	Mixed	Mixed	Admin	Surveys	Surveys	Surveys	Surveys
FS1+FS2	X	X	X	X							
FS2 only					X	X	X	X	X	X	X
Obs.	1,651	1,651	1,651	1,651	810	810	810	810	810	810	810
R-squared	0.138	0.055	0.134	0.136	0.189	0.363	0.530	0.164	0.267	0.092	0.062
Mean in Control	0.703	0.0370	0.695	0.597	29,730	1,598	0	27,430	14,123	12,002	5,102

Notes: All measures of savings outcomes are recorded during the deductions period of the deferred wage scheme. This period covered February to April 2017. Each measure analyzed is an aggregate or detailed measure of savings. FS1 and FS2 refer to follow-up surveys 1 and 2, respectively. We report robust standard errors in parentheses. Statistically significance is denoted by *** p<0.01, ** p<0.05, * p<0.1.

Table 4. Impacts on 14-day Expenditures (February-April 2017)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	14-day detailed expenditures [MK]								Bulk purchases in past 30 days		
	Total	Food	Perishable	Storable	Maize grain	Durables	House improve-ments	Non-food consum-ables	Any purchase > 5k [0/1]	Sum of purchases > 5k [MK]	Any purchase > 10k [0/1]
Treat	292.7	40.36	5.307	88.53	36.45	53.29	26.31	179.3	-0.0237	751.1	-0.00551
	(846.3)	(279.1)	(106.9)	(221.7)	(186.4)	(625.5)	(270.5)	(177.2)	(0.0255)	(787.4)	(0.0218)
Obs.											
FS1	841	841	841	841	841	841	841	841	841	841	841
FS2	810	810	810	810	810	810	810	810	810	810	810
Total	1,651	1,651	1,651	1,651	1,651	1,651	1,651	1,651	1,651	1,651	1,651
R-squared	0.082	0.075	0.087	0.054	0.039	0.061	0.035	0.048	0.081	0.070	0.061
Mean in Control	18,938	9,157	2,745	6,347	3,930	7,286	1,662	2,317	0.504	7671	0.236

Notes: All measures of expenditure outcomes are recorded during the deductions period of the deferred wage scheme. This period covered February to April 2017. Each measure analyzed is an aggregate or detailed measure of a type of expenditure. FS1 and FS2 refer to follow-up surveys 1 and 2, respectively. We report robust standard errors in parentheses. Statistically significance is denoted by *** p<0.01, ** p<0.05, * p<0.1.

Table 5. Flow of Funds after Lump Sum Payout

	(1)	(2)	(3)	(4)
	Total expenditures [MK]	Savings deposits - withdrawals (excluding DW) [MK]	Loans given - received [MK]	Transfers made - received [MK]
Panel A: Interview within 14 days of DW payout --- recall period: number of days since DW payout				
Treat	5,728***	255.9	711.1*	147.4
	(1,255)	(706.3)	(363.4)	(175.8)
Observations	342	342	342	342
R-squared	0.180	0.098	0.056	0.074
Mean in Control	16,060	1,783	-304.5	9.474
Panel B: Interview more than 14 days after DW payout --- recall period : 14 days (fixed)				
Treat	-766.5	-144.5	628.9**	-103.3
	(1,242)	(695.6)	(303.6)	(163.2)
Observations	446	446	446	446
R-squared	0.096	0.071	0.067	0.054
Mean in Control	17,598	737.6	-123.6	26.6

Notes: Lump sum payout of deferred wages occurred on May 6, 2017. The data for post-payout outcomes comes from the third follow-up survey (FS3). Panel A provides results for the sample of workers who we interviewed within the first 14 days of payout. Panel B. provides results for the sample of workers who we interviewed after 14 days. We randomized the interview date for all workers in the sample. We report robust standard errors in parentheses. Statistically significance is denoted by *** p<0.01, ** p<0.05, * p<0.1.

Table 6. Impact of the Deferred Wages Scheme on Short-term Expenditures Following Payout

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	Detailed expenditures [MK]								Bulk purchases		
	Total	Food	Perishable	Storable	Maize grain	Durables	House improve-ments	Non-food consum-ables	Any purchase > 5k [0/1]	Sum of purchases > 5k [MK]	Any purchase > 10k [0/1]
Panel A: Interview within 14 days of DW payout --- recall period: number of days since DW payout											
Treat	5,728***	3,028***	289.4*	2,670***	2,386***	2,233**	1,541***	414.0	0.130***	3,797***	0.136***
	(1,255)	(529.1)	(149.3)	(483.0)	(456.5)	(990.1)	(558.9)	(291.4)	(0.0502)	(1,118)	(0.0394)
Obs.	342	342	342	342	342	342	342	342	342	342	342
R-squared	0.180	0.239	0.181	0.202	0.163	0.108	0.092	0.158	0.107	0.139	0.111
Mean in Control	16,060	8,437	2,263	6,122	4,041	5,007	1,483	2479	0.310	4,933	0.167
Panel B: Interview more than 14 days after DW payout --- recall period : 14 days (fixed)											
Treat	-766.5	-32.46	-358.6**	391.0	368.6	-455.3	173.6	-262.0	0.0227	-283.5	0.000
	(1,242)	(602.5)	(179.2)	(490.5)	(436.2)	(853.6)	(428.6)	(266.9)	(0.0447)	(998.9)	(0.0364)
Obs.	446	446	446	446	446	446	446	446	446	446	446
R-squared	0.096	0.090	0.152	0.084	0.078	0.085	0.099	0.064	0.044	0.080	0.070
Mean in Control	17,598	9,408	2,682	6,596	4,257	5,592	1,183	2,508	0.309	5,168	0.175

Notes: All measures of expenditure outcomes are recorded in the period after the payout of deferred wages (May 6). This data comes from the third follow-up survey (FS3). Each measure analyzed is an aggregate or detailed measure of a type of expenditure. We report robust standard errors in parentheses. Statistically significance is denoted by *** p<0.01, ** p<0.05, * p<0.1.

Table 7. Impacts on Asset Ownership, Four Months after Payout

	(1)	(2)	(3)	(4)
	Asset Value [MK]		Asset PCA Index	
	All durable assets and livestock	House materials	All durable assets and livestock	House materials
Treat	11,326**	7,430***	0.160***	0.356***
	(5,703)	(2,397)	(0.0608)	(0.0931)
Observations	723	723	723	723
Mean in Control	112,239	17,682	-0.004	-0.010
SD in Control	87,969	29,129	0.978	0.927

Notes: All measures of assets are recorded four months after the payout of deferred wages (May 6). This data comes from the fourth follow-up survey (FS4). Each measure analyzed is an aggregate or detailed measure of a type of asset. We report robust standard errors in parentheses. Statistically significance is denoted by *** p<0.01, ** p<0.05, * p<0.1.

Table 8. Effect on Additional Outcomes, Four Months after the Lump Sum Payout

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Food Storage [MK]	Financial savings [MK]	Balance of loans received [MK]	Balance of loans given [MK]	Number of income sources in past 30 days	Total expenditures in past 14 days	Any purchase > 5k in past 30 days	Any purchase > 10k in past 30 days
Treat	284.6	250.9	554.0	1,230**	0.0301	541.3	0.0101	0.0160
	(1,525)	(1,471)	(577.8)	(625.3)	(0.0851)	(773.0)	(0.0319)	(0.0226)
Observations	723	723	723	723	723	723	723	723
R-squared	0.254	0.127	0.061	0.054	0.127	0.079	0.041	0.037
Mean in Control	21,686	12,807	2,541	4,291	1.242	12,160	0.228	0.0912
SD in Control	24,033	19,651	7,267	7,280	1.205	10,000	0.420	0.288

Notes: All measures are recorded four months after the payout of deferred wages (May 6). This data comes from the fourth follow-up survey (FS4). We report robust standard errors in parentheses. Statistically significance is denoted by *** p<0.01, ** p<0.05, * p<0.1.

Table 9. Repeat Take-up for the Original Experiment Treatment Group

	Mean	SD	Obs.
Panel A. Repeat take-up of DW			
Off-season 2017	0.812	0.153	372
Main-season 2018	0.780	0.172	372
Panel B. Threshold choices among off-season 2017 repeat takers			
DW min take-home [MK]	7,559	4,855	302
DW max deduction [MK]	3,476	1,796	302
Panel C. Threshold choices among main-season 2018 repeat takers			
DW min take-home [MK]	8,453	5,565	290
DW max deduction [MK]	4,195	2,156	290

Notes: This table reports repeat take-up and savings choice statistics for the original treatment group of workers in the off-season 2017 and 2018 main agricultural season.

Table 10. Take-up of Variations of the Deferred Wages Scheme

Take-up of scheme variations for 2018 main-season (stochastically incentivized choice)	Mean	N	Test of difference to Original (*p*-values)
(1) Original: lump sum payout, no regular access to funds	0.559	177	
(2) Modification 1: Smooth payout	0.362	174	0.000
(3) Modification 2: More access	0.518	191	0.432

Notes: This table reports take-up statistics for a sample of workers that were not part of the original deferred wage scheme. These workers made choices to participate in a version of the deferred wages scheme offered during the 2018 main agricultural season. Modification 1 refers to an offer to participate in a version of the deferred wage scheme where payout would occur as six separate payouts in two-week intervals at the end of the deductions period. Modification 2 refers to an offer to participate in a version of the deferred wage scheme where workers could withdraw accumulated funds at any point during the deductions period.

Table 11. Impact of Manual Deposit Scheme on Take-up and Savings Outcomes

	(1)	(2)	(3)
	Any deposit [0/1]	Number of deposits (out of 6)	Final Balance after 6 paydays [MK]
Manual Deposit Scheme	-0.303***	-1.854***	-3,516**
	(0.0666)	(0.353)	(1,477)
Observations	186	186	186
Mean in Automatic Deposits group	0.505	2.753	6930

Notes: This table reports impacts on deferred wage scheme outcomes for a sample of workers that were not part of the original deferred wage scheme. These workers made choices to participate in a version of the deferred wages scheme during the 2018 main agricultural season. All workers in this sample received an offer to participate in one of two versions of the deferred wages scheme. One group of workers received an offer to participate in the original version of the deferred wages scheme. The other group of workers could opt into a version of the deferred wage scheme that required manual deposits. In this experiment, all workers receive an offer to defer part of their wages, but "treated" workers must make a manual deposit. We report robust standard errors in parentheses. Statistically significance is denoted by *** p<0.01, ** p<0.05, * p<0.1.

Table 12. Heterogeneous Effects of the Manual Deposit Scheme on Final Balances

	(1)	(2)	(3)	(4)	(5)
	Final Balance After 6 paydays [MK]				
Man. Deposit	-3,516**	-7,549***	-2,861	-3,270**	-6,211**
	(1,477)	(1,673)	(3,798)	(1,508)	(3,005)
Man. Dep. x Medium Regret		3,641			3,155
		(2,734)			(3,969)
Man. Dep. x Low Regret		8,432**			8,501**
		(3,405)			(3,334)
Man. Dep. x Low Kin Tax			-751.0		-1,410
			(4,027)		(3,082)
Man. Dep. x Bank Account				-796.3	-948.1
				(6,984)	(6,987)
Medium Regret		-2,930			-2,469
		(2,159)			(2,811)
Low Regret		-4,943***			-4,993**
		(1,854)			(2,230)
Low Kin Tax			-824.6		-217.2
			(1,723)		(2,046)
Bank Account				4,508	4,586
				(3,721)	(3,737)
Observations	186	186	186	186	186
R-squared	0.031	0.068	0.034	0.041	0.082

Notes: This table reports impacts on deferred wage scheme outcomes for a sample of workers that were not part of the original deferred wage scheme. These workers made choices to participate in a version of the deferred wages scheme during the 2018 main agricultural season. All workers in this sample received an offer to participate in one of two versions of the deferred wages scheme. One group of workers received an offer to participate in the original version of the deferred wages scheme. The other group of workers could opt into a version of the deferred wage scheme that required manual deposits. In this experiment, all workers receive an offer to defer part of their wages, but "treated" workers must make a manual deposit. We report robust standard errors in parentheses. Statistically significance is denoted by *** p<0.01, ** p<0.05, * p<0.1.