Final report

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When citing this paper, please use the title and the following reference number:
F-31400-BGD-1

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Abstract

This paper reports results of a field experiment designed to test how the timing of wage payments affects consumption and financial behaviors. Salaried employees in a large manufacturing firm were paid a bonus equal to approximately 10-15% of their monthly wage. While the amount of the bonus was held constant across all workers, the experiment randomly varied its timing: in a treatment group, workers received the bonus one week before the regular payday – the time when they are most likely to experience financial constraints. In a control group, workers receive the pre-announced bonus on the firm's regular payday. We find evidence of significant heterogeneity in financial constraints. While a large number of workers report having to borrow or cut consumption at the end of the month at baseline, receiving a bonus payment before the firm's regular payday increases savings, indicating an absence of binding liquidity constraints for some workers. At the same time, receiving a pre-payday bonus increases food consumption among workers who (randomly) receive their wages in cash, rather than a bank account. This provides evidence of financial constraints among a subset of workers and suggests that payroll accounts act as an income smoothing technology

*Maura Farrell and Smita Nimilita provided outstanding research assistance. Financial support from the IGC, Innovations for Poverty Action and the World Bank is gratefully acknowledged. The opinions expressed in this paper do not necessarily represent the views of the World Bank, its Executive Directors, or the countries they represent.

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that improves the ability to budget expenses and avoid sharp drops in consumption at the end of the month.

Keywords: Electronic Wage Payments, Savings, Consumption smoothing.

1 Introduction

Most garment factory workers in Bangladesh are the first generation to be employed in the formal sector. Still, many struggle to make their incomes stretch until the next payday. In a baseline survey, for example, 18% of workers at a factory that is quite representative of the general workforce respond that they regularly have to cut meals at the end of the month and 50% respond having to borrow at least once per month to meet expenses, typically from moneylenders or shopkeepers at extremely high interest rates. Hence, despite a stable and predictable income stream, a significant share of workers rely on expensive informal credit to smooth consumption and meet their basic needs over the course of the month.

The need to smooth consumption over time is a problem faced by the poor all over the world, and the challenge of getting individuals to make time-consistent budgeting and consumption decisions has been studied in many other settings (see Laibson 1997, Benartzi and Thaler 2004). The inability to make ends meet and smooth consumption over the course of the month is likely to have far-reaching negative consequences for the household: the continued dependency on expensive informal credit reduces the ability to accumulate precautionary savings, and cope with income shocks. Sharp drops in consumption at the end of the month may, in turn, have negative effects on workers' health, work attendance, and productivity.

In addition to basic time-inconsistency problems, another potential reason for the inability to spread resources across the month arises from the lack of "mental bandwidth" or time for financial planning. Mullainathan and Shafir (2013) find that dividing a payment into incremental pieces can help with this problem. In an experiment with sugarcane farmers in India, they find that a lump sum payment is likely to encourage wasteful spending, while dividing this payment into smaller chunks makes financial planning easier and leads workers to prioritize necessary over wasteful expenses.

In this paper, we examine whether changes in the timing of wage payments can help workers smooth consumption and avoid resource scarcity at the end of the month. To do so, we conduct an experiment testing the channel through which improvements in the ability to smooth income – for example as the result of changes in the frequency of wage payments or the availability of formal payroll accounts – affect workers.

The experiment was conducted in a sample of workers at a large manufacturing firm in Bangladesh who had participated in an earlier field experiment on electronic wage payments. This has the advantage that we have extensive demographic, financial and productivity data

for all workers in this population, measured at baseline and in follow-up surveys covering a time period of approximately two years. Moreover, a subset of the workers at this firm had been enrolled to receive electronic wage payments as part of an earlier study – a technology that can potentially facilitate budgeting and income smoothing over time. Within this population, we implemented an experiment that induced exogenous variation in the income stream of study participants through a one-time performance bonus. Workers in the sample were informed that they would receive a one-time bonus payment as a reward for their participation in an earlier study, worth approximately 10-15% of their monthly salary. While the *amount* of this bonus payment was held constant, the *timing* of the payment was randomized to occur at different points during the monthly pay-cycle at the firm: In a treatment group, workers were assigned to receive the bonus payment approximately one week before the firm's usual payday (the time when workers are most likely to report budgeting problems that could lead them to borrow or cut consumption). In a control group, workers instead received the bonus at the time of the regular payday. We then compare consumption and financial outcomes, as well as a range of productivity outcomes that might be affected across the two groups.

If workers are indeed financially constrained at the end of the month, we would expect that a bonus payment which occurs in the last week before the payday will help workers deal with end-of the month expenses. These workers might, for instance, be able to avoid high interest-rate borrowing, and sharp drops in consumption. Moreover, recent work that has linked scarcity to work performance and productivity predicts that improved income smoothing might also be reflected in outcomes related to productivity: workers who receive the bonus in the last week before the payday might be less worried about making ends meet, miss fewer days of work, and thus be more productive in the work-place. Whether changes in the timing of wage payments have a sufficiently large impact to translate into productivity effects is, however, an entirely open empirical question. The design of our experiment allows us to shed light on these questions.

Similarly, little is known about the effects of payroll accounts or other technologies that might facilitate income smoothing. We conduct our experiment in a factory where the researchers had randomly rolled out electronic payroll into bank and mobile money accounts more than nine months prior. This allows us to explore heterogeneity in worker responses to the pre-payday cash drop by account status. If electronic payroll accounts help workers to smooth consumption, we expect that workers who receive their wages electronically will be less constrained at the end of the month than their cash-receiving counterparts, and therefore

will be less sensitive to the timing of the bonus.

This study contributes to two strands of the literature. First, we contribute to a growing literature on household finance and incentives intended to help individuals make better financial decisions. Bursztyn et al. (2016) show that information about a credit registry and messages with moral suasion content get households in Indonesia to repay expensive credit card debt. Karlan et al. (2016) show that simple reminders for debt repayment work in similar settings. Similarly, a number of studies have shown that access to innovative financial products can improve financial capabilities and improve the risk coping mechanisms of the poor (Jack and Suri 2014, Dupas and Robinson 2013, Blumenstock et al. 2016). We contribute to this line of research by testing a proof of concept for whether a change in the timing of wage payments that is similar to a short-term savings product synced with a worker's monthly payment schedule can improve budgeting decisions and reduce reliance on informal sources of credit.

Secondly, this project explores the intersection between access to finance and worker productivity. We know from a variety of settings that individuals have a hard time smoothing lumpy income payments due to present bias, inattention or other behavioral frictions (Laibson 1997; Mullainathan and Shafir 2013; Stephens 2008). This failure to smooth income has real costs. For example, Shapiro (2005) shows that American food stamp recipients reduce their food consumption by 13.5% across the month. Nutritional deficits alone may have deleterious effects on productivity and cognitive ability (Schofield 2014). Mullainathan and Shafir (2013) further argue that states of scarcity such as that at the end of the month lead individuals to act more present biased and to make more mistakes in decision making, which can spill over to workplace performance. The financial product which we propose to evaluate shares many of the beneficial behavioral characteristics with the long-term savings products studied by Benartzi and Thaler (2004), Ashraf et al. 2006, and Beshears et al. (2006). However, this study attempts to tackle a different problem, one of short-term under-savings and its adverse effects on consumption and financial behaviors.

2 Setting and Experimental Design

2.1 Sample Population and Descriptive Statistics

The sample population for our experiment consists of 632 workers at a large garment manufacturing firm in Bangladesh. The experiment reported in this paper was designed as an

add-on to an earlier study that introduced electronic wage payments in a sample of approximately 3,000 workers at several manufacturing firms in Bangladesh. For this study, we collected extensive baseline and follow-up data on workers in the sample, which we utilize as outcome variables. Table 1 reports summary statistics for all workers in the sample. The gender breakdown of workers in this sample is approximately 55% women and 45% men. Almost all of the employees are Muslim and largely comprised of migrant workers from rural areas of Bangladesh. As a result of having participated in an earlier study, a subset of workers in our sample were paid monthly wages in cash, while another subset of workers received monthly wage payments into a digital payroll account. During the earlier study, we randomly and individually assigned workers to either continue receiving their monthly wages in cash or begin receiving electronic monthly wage payments through either a bank or mobile account. Within our sample of 632 workers, 54% receive electronic wage payments into either a bank or mobile money account, the remaining 46% receive wage payments in cash.

The summary statistics reveal a number of interesting patterns in the consumption and savings of workers in our sample. When comparing the baseline survey, completed in 2014, to results from the endline survey, completed in 2016, we find that planned savings over a 12 month time horizon is significantly higher than actual savings, indicating that workers find it hard to follow through on their savings goals. When we asked respondents if, in the past 12 months, they had ever run out of money by the end of the month, 32% of respondents reported that they needed to borrow, 45% reported that they had to delay payments to shops, and 5% reported that they were forced to cut meals at the end of the month to make ends meet. These budget shortfalls suggest that workers find it difficult to budget their income over the course of the month. Note, however, that a relatively high percentage of households facing budgeting problems are nonetheless able to borrow, albeit at high interest rates, so that for a large subset of the study population income smoothing problems may not necessarily translate into liquidity constraints at the end of the month.

3 Experimental Treatments

The experimental treatments were implemented as follows. At the start of our study, it was announced that all workers would receive a cash bonus equal to 10-15% of their salary in either the current monthly pay-period or the next monthly pay-period. Workers were randomly assigned to either a control group that would receive a bonus on the next month's

payday or a treatment group in which workers received a bonus payment approximately two weeks before the next payday.

We also incorporate variation from the previous field experiment conducted in the same garment factory. One year prior, the authors randomized the rollout of electronic wage payments. Individuals in the factory were assigned to one of four treatments or a control group. Treated workers either received a bank account or a mobile money account. A subset of these workers additionally received their wage payments electronically into these accounts each month. We stratified the timing of the cash payment by treatment.

The cash bonus was timed to help workers smooth consumption over the month and meet end-of-month liquidity constraints. However, workers that receive electronic wage payments into an account already have a mechanism to save money to manage their cash during the month and save for future expenses. Hence, workers in our treatment that receive wage payments into an account might be better off at the end of the month, relative to workers that are paid in cash. Therefore, our treatment should have a relatively larger effect helping workers paid in cash meet end-of-month expenses. We can test this effect by estimating the heterogeneous impact of the bonus on workers paid in cash, as compared to those who receive electronic wage payments and already have available an account that can be used to manage liquidity over the pay period. We interpret a significant difference in the impact of the bonus on workers with and without electronic wage payments as an indication of the role of formal accounts as a smoothing device.

All bonus payments were made in cash, regardless of whether their monthly wage payment was made in cash or into an account. As shown in Table 2, our randomization assignments are robust to demographic characteristics (gender, marital status, children), savings behaviour, mode of wage payment (cash or electronic wage payments), and job tenure (years in current job and years expected to stay in current job).

4 Main Results

4.1 Empirical Specification

Since treatment is randomly assigned at the individual level, we estimate simple treatment effect regressions of the form:

$$Outcome_i = \alpha + \gamma T_i^{Pre} + X'\delta + \epsilon_i$$

where T_i^{Pre} is an indicator for receiving the cash bonus before the next payday for individual i, X is a vector of strata controls.

We also estimate heterogeneous treatment effects by prior access to electronic wage payments:

$$Outcome_i = \alpha + \gamma TPre_i + \beta T_i^{Pre} * T_i^{EWP} + X'\delta + \epsilon_i$$

where T_i^{EWP} is an indicator for whether individuals had been previously randomly selected to receive their wages electronically into either a bank or mobile money account.

4.2 Consumption

We first analyze the effect of a pre-payday cash bonus on consumption and financial resilience (Table 3). Our estimation results show no average effects of a pre-payday bonus on consumption spending in the past seven days, including both food and non-food items (in both absolute and log terms). Furthermore, there is no significant difference in the number of shocks workers report experiencing, such as skipping meals or going hungry in the past seven days. However, note that in the month of our experiment, the average number of episodes with inadequate resources was quite small – 0.15.

We do find some suggestive evidence of a heterogeneous response by access to electronic payroll. Panel B of Table 3 shows that workers that receive cash wage payments consume relatively more food following receipt of their pre-payday bonus as compared to workers that receive electronic wage payments into an account. Our result that after receiving a pre-payday bonus, only workers paid in cash increase food consumption –but not workers that receive wage payments–suggests that workers paid in cash might be more liquidity constrained at the end of the month than workers receiving wage payments into an account. This implies that electronic wage payments and the use of a bank or mobile account may allow for improved consumption smoothing and have significant welfare benefits for workers.

4.3 Savings and Borrowing

Next, we examine the effect of the mid-month cash bonus on balances and savings (Table 4). We find that workers who received a pre-payday bonus have significantly greater total savings (Columns 3 and 4). This suggests that at least some workers were not liquidity constrained before the pre-payday bonus, and decided to save rather than spend their bonus. Table 4 also

shows a significantly negative effect of a pre-payday bonus on new credit borrowed in the past seven days. Workers receiving a pre-payday bonus report using store-credit for fewer days in the past week (Column 7). Workers that received a pre-payday bonus are also significantly less likely to have borrowed from an informal lender in the past seven days (Columns 8). We find no marginal impact of electronic wage payments on savings or borrowing behaviour.

Note in Panel A that the savings response leads to an increase in individuals reporting any savings. In Panel B of Table 4, we find that this extensive margin response is concentrated among the workers without electronic payments. We show in prior work that electronic payroll increases savings, so there is less scope to find extensive margin savings responses among the EWP treatment group. The point estimates are consistent with the EWP workers saving more of their bonus, but the impacts on total savings in columns 1 and 2 are extremely imprecise.

4.4 Worker Productivity

Finally, we examine the effect of a pre-payday bonus on worker productivity (Table 5). We use data collected by the factory on punctuality, attendance, work speed and accuracy, and self-reported likelihood of promotion and salary increase. We interviewed each supervisor before the first bonus payment and then again one week after the pre-payday bonus, prior to the subsequent payday. It's important to keep in mind that any performance changes would occur at a short time horizon. This intervention is too short lived to meaningfully affect a worker's longer run prospects at the firm.

In Panel A, we find no effect of the pre-payday bonus in the general population on any measured outcome. However, as shown in Panel B, after getting a pre-payday bonus workers paid their wages in cash are significantly more likely to miss work or arrive to work late, relative to the median performance of workers that receive electronic wage payments. We speculate that workers facing a liquidity constraint may increase their labor supply at the end of the month to pay off all of their bills on the next payday. It is possible that when end of month borrowing decreases because of the pre-payday bonus, it is no longer necessary to supply as much labor because it is easier to manage any shortfalls at the end of the month. Again, we find no effect for individuals who had prior access to electronic wage disbursements.

5 Conclusion

In this paper, we have presented preliminary results from an experiment, designed to understand the effect of changes in the timing of wage payments on worker welfare, financial outcomes and productivity. We do so by providing workers who had participate in a previous study on electronic wage payments with a participation bonus, and exogenously varying the point in the monthly pay cycle at which participants receive the bonus.

We find evidence of significant heterogeneity in financial constraints and the ability to smooth income over time. While a strikingly large number of workers report cutting consumption and borrowing from shopkeepers and informal lenders at baseline, we find that – on average – workers who receive a bonus payment before their payday increase savings, indicating an absence of binding liquidity constraints for at least a subsample of workers. At the same time, we find that pre-payday bonus payments increase total food consumption, but only for workers who receive their wage payments in cash as opposed to a digital payroll account.

Taken together, the pattern of our results suggests that changes in the timing of wage payments can affect the ability of households to smooth their consumption over time. However, the fact that we observe this effect only for workers who still receive their wages in cash, but not for workers with payroll accounts, suggests that receiving one's wage as a direct deposit into a formal account has an effect similar to that of varying the timing of one's income stream. It allows workers to smooth income over time and avoid sharp drops in consumption at the end of the month.

References

Ashraf, Nava, Dean Karlan, and Wesley Yin, "Tying Odysseus to the Mast: Evidence From a Commitment Savings Product in the Philippines*," *The Quarterly Journal of Economics*, 2006, *121* (2), 635.

Benartzi, Shlomo and Richard H. Thaler, "Save More Tomorrow: Using Behavioral Economics to Increase Employee Savings," *Journal of Political Economy*, 2004, *112* (1), S164–S187.

Beshears, John, James Choi, David Laibson, and Brigitte Madrian, "The Importance of Default Options for Retirement Savings Outcomes: Evidence from the United States," *NBER Working Paper 12009*, 2006.

Blumenstock, Joshua, Michael Callen, and Tarek Ghani, "Mobile-izing Savings with Automatic Contributions: Experimental Evidence on Dynamic Inconsistency and the Default Effect in Afghanistan," *Working Paper*, 2016.

Bursztyn, Leonardo, Stefano Fiorin, Daniel Gottlieb, and Martin Kanz, "Moral Incentives: Experimental Evidence from an Islamic Credit Card," *Working Paper*, 2016.

Dupas, Pascaline and Jonathan Robinson, "Why Don't the Poor Save More? Evidence from Health Savings Experiments," *American Economic Review*, June 2013, *103* (4), 1138–71.

Jack, William and Tavneet Suri, "Risk Sharing and Transactions Costs: Evidence from Kenya's Mobile Money Revolution," *American Economic Review*, January 2014, *104* (1), 183–223.

Karlan, Dean, Margaret McConnell, Sendhil Mullainathan, and Jonathan Zinman, "Getting to the Top of Mind: How Reminders Increase Saving," *Management Science*, 2016, *62* (12), 3393–3411.

Laibson, David, "Golden Eggs and Hyperbolic Discounting," *Quarterly Journal of Economics*, 1997, *112*, 443–477.

Mullainathan, Sendhil and Eldar Shafir, *Scarcity: Why Having Little Means So Much*, Henry Holt and Company, 2013.

Schofield, Heather, "The Economic Costs of Low Caloric Intake: Evidence from India," *Working Paper*, 2014.

Shapiro, Jesse, "Is there a Daily Discount Rate? Evidence from the Food Stamp Nutrition Cycle," *Journal of Public Economics*, 2005, *89*, 303–325.

Stephens, Melvin, "The Consumption Response to Predictable Changes in Discretionary Income: Evidence from the Repayment of Vehicle Loans," *Review of Economics and Statistics*, 2008, *90*, 241–252.

Figures and Tables

Table 1: **Summary Statistics**

	(1) Observations	(2) Mean	(3) Median	(4) StDev	(5) Min	(6) Max
I. Demographics						
Female	632	0.552	1	0.498	0	1
Married	632	0.753	1	0.432	0	1
Has children	632	0.634	1	0.482	0	1
Has savings	632	0.807	1	0.395	0	1
Has formal savings	632	0.492	0	0.500	0	1
Time in current job (years)	632	2.145	2	1.488	0.5	11
Years expected to stay in current job	632	3.274	3	2.090	0	11
Receives EWP	632	.540	1	.499	0	1
II. Consumption and Shocks Last 7 Days (Post-Payday Bonus Workers)						
Total consumption	319	2636.05	1600	4028.667	0	52775
Food consumption	319	793.730	525	824.597	0	5100
Non-food consumption	319	1842.32	850	3893.094	0	52550
Total number of shocks	319	.1578	0	.470	0	3
III. Savings and Credit Last 7 Days (Post-Payday Bonus Workers)						
Total savings amount (BDT)	319	27408.46	4000	45506.64	0	270000
Dummy any savings or cash	319	.774	1	0.419	0	1
Amount of loans outstanding	318	452.594	0	2822.024	0	47500
Taken any loans	318	.377	0	0.485	0	1
Frequency borrowed from shop	319	.8658	1	1.083	0	4
Borrowed from shop	319	.524	1	0.500	0	1
Borrowed from informal source	319	0.376	0	.485	0	1
Borrowed from formal source	319	0	0	0	0	0
IV. Supervisor Rating of Worker (Baseline)						
Punctuality and attendance	611	8.408	9	1.664	1	10
Meets production target	611	8.571	9	1.584	1	10
Production mistakes	611	7.966	8	1.851	1	10
Speed and focus	609	2.929	3	0.700	1	5
Pressure required from supervisor	609	2.967	3	0.722	1	5

Notes: The table presents summary statistics of demographics and dependent variables for regressions. Section I displays time-invariant demographic information for the full sample from the baseline survey in October 2016. Sections II and III display consumption and savings variables for the group that received the post-payday bonus. Section IV displays the supervisor evaluations of workers from the baseline survey before the bonuses were given.

Table 2: **Balance**

VARIABLES	(1) Dummy Bank or Mobile EWP	(2) Female	(3) Married	(4) Has Children	(5) Has any savings	(6) Dummy: has savings in formal account	(7) Years in Current Job	(8) Years Expected to Stay in Job
Pre-Payday Bonus	-0.0141	-0.0264	-0.00922	0.0312	0.0524	0.0184	0.0354	-0.222
	(0.0451)	(0.0450)	(0.0394)	(0.0437)	(0.0352)	(0.0453)	(0.137)	(0.194)
Observations	489	489	489	489	489	489	489	489
R-squared	0.000	0.001	0.000	0.001	0.005	0.000	0.000	0.003
Post Bonus Pre Survey Mean	0.537	0.541	0.742	0.648	0.840	0.500	2.166	3.193

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Notes: The table presents a test of random assignment. Each column reports results from a separate regression in which the dependent variable indicated in the header is regressed on the treatment indicator. Heteroskedasticity robust standard error are reported in parentheses.

Table 3: **Treatment Effects: Consumption and Shocks**

VARIABLES	(1) Total consumption spending last 7 days	(2) Total value spent on food last 7 days	(3) Total value spent on non-food consumption last 7 days	(4) Total consumption Log	(5) Total food consumption Log	(6) Total nonfood consumption Log	(7) Number of shock types - inadequate resources in last 7 days
Panel A: Pooled treatment effects							
Pre-Payday Bonus	398.6	-50.17	451.4	-0.0412	0.0190	0.0419	-0.00194
	(490.6)	(56.02)	(475.0)	(0.119)	(0.184)	(0.181)	(0.0454)
R-squared	0.026	0.133	0.029	0.061	0.159	0.048	0.070
Panel B: Heterogeneous treatment effects							
Pre Bonus	204.6	34.38	194.2	-0.0122	0.457*	-0.265	0.0358
	(700.8)	(80.35)	(707.3)	(0.184)	(0.260)	(0.279)	(0.0686)
Pre Bonus*Bank or Mobile EWP	381.7	-154.5	530.9	-0.0457	-0.794**	0.570	-0.0650
	(1,107)	(112.1)	(1,092)	(0.251)	(0.368)	(0.371)	(0.0890)
R-squared	0.027	0.137	0.033	0.063	0.171	0.053	0.075
Test: Pre*EWP = Post*EWP	0.458	0.126	0.342	0.723	0.194	0.208	0.619
Observations	489	446	489	489	446	489	483
Control Mean	2507	584.6	1923	6.924	5.439	5.944	0.152

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Notes: The table reports treatment effects of receiving a cash bonus at the end of the month on consumption and shocks. Panel A shows the pooled treatment effects across prior EWP treatment status. Panel B shows heterogeneous treatment effects by whether the worker (randomly) received electronic wage payments prior to the bonus announcement. All regressions control for the strata used in the initial randomization. Additionally, we include a lagged measure of the dependent variable collected 1-2 months prior to the surveys as part of the larger EWP study. Robust standard errors are in parentheses.

Table 4: **Treatment Effects: Savings and Credit**

VARIABLES	(1) Total savings	(2) Total savings winsorized 95%	(3) Total savings Log	(4) Dummy any savings including cash	(5) Amount borrowed last 7 days	(6) Dummy borrowed money last 7 days	(7) Days borrowed shop – 4: always, 0: never	(8) Dummy took informal loan last 7 days
Panel A: Pooled treatment effects								
Pre-Payday Bonus	4,804	4,562	0.794**	0.0738*	93.00	-0.0809*	-0.185*	-0.0852**
	(3,194)	(2,947)	(0.365)	(0.0376)	(193.4)	(0.0424)	(0.0940)	(0.0421)
R-squared	0.373	0.373	0.166	0.079	0.041	0.122	0.115	0.126
Panel B: Heterogeneous treatment effects								
Pre Bonus	2,315	2,958	1.317***	0.136**	-71.60	-0.0728	-0.132	-0.0803
	(4,018)	(3,799)	(0.504)	(0.0528)	(136.5)	(0.0631)	(0.150)	(0.0625)
Pre Bonus*Bank or Mobile EWP	4,346	2,759	-0.969	-0.114	304.8	-0.0152	-0.0936	-0.00885
	(6,183)	(5,742)	(0.715)	(0.0744)	(415.1)	(0.0852)	(0.191)	(0.0845)
R-squared	0.379	0.377	0.169	0.084	0.042	0.122	0.115	0.126
Test: Pre*EWP = Post*EWP	0.159	0.185	0.497	0.679	0.524	0.126	0.0576	0.119
Observations	489	489	489	489	486	486	488	489
Control Mean	29359	28238	7.501	0.811	441.3	0.326	0.712	0.320

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Notes: The table reports treatment effects of receiving a cash bonus at the end of the month on savings and credit. Panel A shows the pooled treatment effects across prior EWP treatment status. Panel B shows heterogeneous treatment effects by whether the worker (randomly) received electronic wage payments prior to the bonus announcement. All regressions control for the strata used in the initial randomization. Additionally, we include a lagged measure of the dependent variable collected 1-2 months prior to the surveys as part of the larger EWP study. Robust standard errors are in parentheses.

Table 5: **Treatment Effects: Worker Productivity**

VARIABLES	(1) Total score across all ratings	(2) Above median rating: punctuality and attendance	(3) Above median rating: achievement of daily production targets	(4) Above median rating: mistakes/ rejections	(5) Above median rating: work speed and focus	(6) Above median: (low) level of pressure given to worker	(7) Above P75 for likelihood of promotion	(8) Above median: probability of salary increase in next 6 months
Panel A: Pooled treatment effects								
Pre-Payday Bonus	0.152	-0.0348	0.00646	0.0293	-0.000973	-0.0106	0.0222	0.0255
	(0.412)	(0.0336)	(0.0360)	(0.0293)	(0.0281)	(0.0304)	(0.0227)	(0.0264)
R-squared	0.771	0.545	0.484	0.582	0.547	0.534	0.796	0.706
Panel B: Heterogeneous treatment effects								
Pre-Payday Bonus	0.0117	-0.143***	0.00964	0.0442	0.0122	-0.0343	0.00853	-0.00995
	(0.593)	(0.0479)	(0.0529)	(0.0435)	(0.0433)	(0.0473)	(0.0327)	(0.0396)
Pre-Payday *Bank or Mobile EWP	0.264	0.198***	-0.00580	-0.0275	-0.0248	0.0438	0.0205	0.0652
	(0.874)	(0.0657)	(0.0713)	(0.0570)	(0.0566)	(0.0602)	(0.0449)	(0.0512)
R-squared	0.771	0.554	0.484	0.582	0.548	0.535	0.797	0.707
Test: Pre-Payday Bonus* EWP = EWP	0.649	0.220	0.937	0.665	0.733	0.804	0.351	0.108
Observations	613	613	613	613	613	613	613	613
Control Mean	52.10	0.591	0.495	0.706	0.751	0.735	0.377	0.601
Supervisor Controls	✓	✓	✓	✓	✓	✓	✓	✓

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Notes: The table reports treatment effects of receiving a cash bonus at the end of the month on job performance. Panel A shows the pooled treatment effects across prior EWP treatment status. Panel B shows heterogeneous treatment effects by whether the worker (randomly) received electronic wage payments prior to the bonus announcement. All regressions control for the strata used in the initial randomization and the supervisor performing the evaluation. Additionally, we include a lagged measure of the dependent variable collected 1-2 months prior to the surveys as part of the larger EWP study. Robust standard errors are in parentheses.

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