

Populated PAP for the paper: Nudging Payment Behaviour: Evidence from a Field Experiment on Pay-as-You-Go Off-Grid Electricity*

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1 Introduction

The current document presents the results of the analysis proposed in the Pre-Analysis Plan called "Solar Electricity in Rural Sindh: Role of Flexibility and Planning in Repayment Discipline" uploaded on October 18, 2017 in the AEA RCT Registry under trial number [AEARCTR-0002543](#).

In the first section, we discuss the limitations and pitfalls of the PAP and the consequent changes to hypothesis, variables and specifications which we adopt to carry out the analysis.

Then, we show the results of the pre-specified analysis.

Finally, we discuss the results of the populated PAP vis a vis those presented in the paper and the list of departures from the PAP with a detailed explanation of the reasons.

2 Reasons for departures from the PAP

Field implementation, data collection and further discussion led us to reconsider some aspects presented in the PAP. In particular,

- The PAP does not clearly specify which variables are included in the vector of controls X_i in all equations. In Section 5.1 of the PAP we commit to use post-double-selection with LASSO as a robustness checks. Hence, we present the results using the same method. The full list of possible controls include initial contractual features (daily rate at the contract start, rental contract at start), household socio-economic characteristics (respondent's age, respondent can read and write, any

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savings) and the dimensions of heterogeneity used in the following analysis (knows the contract rate, knowledge index, distance from Easypaisa agent, index for mental constraints, index for ability to smooth consumption). We also estimate a simple model without controls.

- In the PAP we differentiate between the probability of experiencing at least one delayed payment (Y_{i1}) and the probability the system is switch-off (Y_{i2}). However, in reality the two concepts are fully overlapping and are defined in the paper as system inactivity. The specific variable is labelled as "At least one inactive day".
- In the PAP we differentiate between the probability of default (Y_{i3}) and "dropout after installation" (Y_{i9}). The data do not allow to distinguish the two cases which we consider together with a dummy for contract cancellation.
- We do not have the data available to analyse the outcome ‘Dropout before installation’ (Y_{i8}).
- RQ5 refers to the combined effects of the two treatments and does not imply the analysis of heterogeneity which is reported in equation 6.
- RQ7 cannot be estimated due to the limited sample of business customers (5%).
- The PAP specifies one source of heterogeneity – distance to EasyPaisa agent – in the discussion of RQ2. The remaining dimensions are specified in Table 5. Note, of these, we do not have data on H_{i14} (Financial literacy), which we had specified in the PAP was not included in the final survey; and we do not test heterogeneity by H_{i15} customer type, given only 5% of the sample are business customers.
- The PAP specifies a robustness check (iii) that involves treating cancellation as attrition and estimating Lee bounds for RQ1-7. Note however, that cancellation can be impacted by treatment, leading to a selected sample of non-attriters and biased estimates. We drop this robustness check and conduct a thorough analysis of cancellation as an outcome in the paper.

3 Results

- *Baseline balance across treatments:*
- **RQ1:** *What is the average effect of flexibility on repayment performance?*

$$y_i = \alpha + \beta_1 Flex_i + X\gamma + \varepsilon_i \quad (1)$$

Table 1: Contract and respondent characteristics at baseline

	(1)	(2)	(3)	(4)	(5)
	All	Flex	IIP	Flex x IIP	F stat <i>p</i>
<i>Panel A: Treatments</i>					
Flex	0.482				
IIP	0.566				
<i>Panel B: Respondent characteristics</i>					
Type of customer: business	0.052	0.052	0.056	0.062	0.738
Respondent age	35.566	36.110	35.194	35.503	0.702
Can read and write	0.822	0.832	0.829	0.815	0.954
Any savings	0.253	0.297	0.185	0.262	0.028
Access to credit	0.171	0.174	0.181	0.159	0.949
Share of HH members with regular income	0.457	0.495	0.462	0.442	0.541
Experiences > 10 hours loadshed/day	0.858	0.897	0.880	0.846	0.105
Understands product type	0.815	0.826	0.824	0.805	0.931
Understands payment procedure	0.912	0.897	0.903	0.913	0.512
Does not know daily rate	0.090	0.084	0.079	0.077	0.458
Distance from EP less than 1 Km	0.190	0.187	0.167	0.200	0.695
Anticipate problems to repay on time	0.180	0.174	0.185	0.154	0.555
Main constraint to pay: set aside money	0.394	0.413	0.398	0.390	0.918
Main constraint to pay: keep safe from other	0.326	0.310	0.333	0.303	0.645
Main constraint to pay: resist temptations	0.394	0.458	0.417	0.338	0.108
Main constraint to pay: remember payments	0.431	0.426	0.463	0.374	0.243
Main constraint to pay: go and pay	0.366	0.374	0.370	0.328	0.555
<i>Panel C: Contract characteristics</i>					
Perpetual (vs. rent-to-own)	0.679	0.742	0.694	0.641	0.141
Daily rate (USD)	1.258	1.199	1.221	1.293	0.077

Notes: The table shows means of respondent and contract characteristics for the whole sample, N=726, (column 1) and for sub-treatment groups (columns 2 to 4). Column 5 reports the p-value of a test of joint significance (F-stat) of two treatment dummies and their interaction on the characteristic in each line.

Here we present the results without and with controls (using lasso).

Table 2: Effect of flexibility on repayment performance

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Atleast 1 inactive days	>= Atleast 1 inactive days	Avg inactivity	Avg inactivity	N. of switchoffs	N. of switchoffs	Share delays	Share delays
Flex	-0.003 (0.014)	-0.003 (0.014)	0.008 (0.031)	0.008 (0.031)	-1.005* (0.570)	-1.005* (0.569)	0.239 (0.299)	0.239 (0.299)
Constant	0.963*** (0.010)	0.963*** (0.010)	0.596*** (0.022)	0.596*** (0.022)	7.128*** (0.456)	7.128*** (0.455)	3.899*** (0.201)	3.899*** (0.201)
Observations	726	726	726	726	726	726	726	726
Controls	No	Yes	No	Yes	No	Yes	No	Yes

Note: Dependent variables are defined as : Y_{i1} : dummy for ‘at least one 1 inactive day(s)’, Y_{i4} : Average no. of inactive days per month; Y_{i5} : ‘No. of switch-offs’; Y_{i6} : ‘Share of days of delay in payment’. Columns 2,4,6,8 include individual controls selected through LASSO between daily rate at the contract start, rental contract at start, respondent’s age, respondent can read and write, any savings, knows the contract rate, knowledge index, distance from Easypaisa agent, index for mental constraints, index for ability to smooth consumption. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Adjusting critical values following the approach by Anderson (2008): ^{AAA}Significance at 1% level, ^{AA}Significance at 5% level, ^ASignificance at 10% level.

- **RQ2:** *What are the sources of heterogeneity of the effects of flexibility?*

$$y_i = \alpha + \beta_1 Flex_i + \beta_2 Flex_i \times H_i + X\gamma + \varepsilon_i \quad (2)$$

the vector H contains variables which are proxy for the ability to smooth consumption, for mental constraints, time inconsistency, ability to manage financial issues, and distance from the bazar.

Table 3: Sources of heterogeneity of the effects of flexibility on inactivity and inactivity

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Panel A: At least 1 inactive days										
H:	Mental const.	Mental const.	Smooth consp.	Smooth consp.	Mgmt fin	Mgmt fin	Time incons	Time incons	Dist EP	Dist EP
Flex	-0.002 (0.014)	-0.002 (0.014)	-0.002 (0.014)	-0.002 (0.014)	-0.004 (0.023)	-0.004 (0.023)	0.006 (0.015)	0.006 (0.014)	0.008 (0.020)	0.007 (0.020)
H	0.002 (0.009)	-0.002 (0.009)	0.001 (0.008)	-0.001 (0.011)	-0.003 (0.006)	-0.003 (0.007)	0.040*** (0.011)	0.044*** (0.013)	0.016 (0.019)	0.012 (0.020)
Flex*H	0.002 (0.015)	0.003 (0.014)	-0.014 (0.013)	-0.016 (0.013)	0.001 (0.008)	0.001 (0.008)	-0.106* (0.057)	-0.109* (0.056)	-0.024 (0.029)	-0.020 (0.029)
Constant	0.963*** (0.010)	1.019*** (0.061)	0.963*** (0.010)	1.021*** (0.061)	0.970*** (0.016)	1.027*** (0.062)	0.960*** (0.011)	1.012*** (0.061)	0.955*** (0.015)	1.015*** (0.059)
Observations	726	726	726	726	726	726	726	726	726	726
Controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Panel B: Average inactivity										
H:	Mental const.	Mental const.	Smooth consp.	Smooth consp.	Mgmt fin	Mgmt fin	Time incons	Time incons	Dist EP	Dist EP
Flex	0.007 (0.031)	0.006 (0.030)	0.009 (0.031)	0.007 (0.030)	0.028 (0.053)	0.029 (0.053)	0.001 (0.032)	0.001 (0.032)	-0.035 (0.045)	-0.042 (0.045)
H	0.001 (0.020)	-0.011 (0.020)	-0.010 (0.019)	-0.022 (0.024)	-0.010 (0.012)	-0.015 (0.014)	-0.097 (0.082)	-0.074 (0.083)	-0.067 (0.044)	-0.083* (0.044)
Flex*H	-0.009 (0.028)	-0.006 (0.028)	-0.011 (0.027)	-0.011 (0.027)	-0.007 (0.017)	-0.009 (0.017)	0.096 (0.120)	0.072 (0.119)	0.093 (0.061)	0.106* (0.062)
Constant	0.596*** (0.022)	0.583*** (0.133)	0.596*** (0.022)	0.586*** (0.132)	0.620*** (0.040)	0.599*** (0.138)	0.603*** (0.023)	0.588*** (0.132)	0.627*** (0.035)	0.602*** (0.132)
Observations	726	726	726	726	726	726	726	726	726	726
Controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes

Note: Dependent variables are defined as : Y_{i1} : dummy for 'at least one 1 inactive day(s); Y_{i4} : Average no. of inactive days per month. 'H' defines the dimension of heterogeneity: Mental const. is H_{i11} : mental constraint index, Smooth consp. is H_{i1} : ability to smooth consumption constructed through PCA, Mgmt fin is H_{i13} : management of financial issues, Time incons is H_{i12} : A dummy variable equal to one when the individual switches to the (higher) future amount later in the short-term frame (tomorrow vs one month), than in the long-term frame (5 vs 6 months), Dist EP is the distance from the nearest Easypaisa agent. Columns 2,4,6,8 include individual controls selected through LASSO between daily rate at the contract start, rental contract at start, respondent's age, respondent can read and write, any savings, knows the contract rate, knowledge index, distance from Easypaisa agent, index for mental constraints, index for ability to smooth consumption. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 4: Sources of heterogeneity of the effects of flexibility on switchoffs and share delays

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Panel A: N. Switchoffs										
H:	Mental const.	Mental const.	Smooth consp.	Smooth consp.	Mgmt fin	Mgmt fin	Time incons	Time incons	Dist EP	Dist EP
Flex	-1.042*	-1.033*	-1.013*	-1.015*	-0.885	-0.785	-1.137*	-1.173**	-2.010**	-2.082**
	(0.568)	(0.554)	(0.569)	(0.558)	(1.017)	(0.994)	(0.605)	(0.596)	(0.882)	(0.883)
H	-0.018	-0.002	0.255	-0.195	0.004	-0.235	-2.651**	-2.645**	-1.885**	-1.949**
	(0.346)	(0.348)	(0.379)	(0.489)	(0.231)	(0.263)	(1.088)	(1.124)	(0.875)	(0.900)
Flex*H	-0.481	-0.417	-0.256	-0.187	-0.048	-0.087	1.970	2.005	2.169*	2.332**
	(0.459)	(0.462)	(0.495)	(0.502)	(0.296)	(0.296)	(1.518)	(1.530)	(1.117)	(1.143)
Constant	7.128***	5.932***	7.136***	6.050***	7.117***	6.077**	7.318***	6.132***	8.005***	6.423***
	(0.456)	(2.303)	(0.454)	(2.306)	(0.802)	(2.403)	(0.484)	(2.298)	(0.761)	(2.301)
Observations	726	726	726	726	726	726	726	726	726	726
Controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Panel B: Share delays										
H:	Mental const.	Mental const.	Smooth consp.	Smooth consp.	Mgmt fin	Mgmt fin	Time incons	Time incons	Dist EP	Dist EP
Flex	0.203	0.258	0.245	0.278	0.688	0.753	0.189	0.196	0.209	0.220
	(0.295)	(0.297)	(0.300)	(0.299)	(0.510)	(0.508)	(0.312)	(0.311)	(0.405)	(0.401)
H	0.092	0.097	-0.065	-0.163	0.018	-0.055	-1.198	-1.400*	-0.040	0.033
	(0.203)	(0.204)	(0.167)	(0.202)	(0.108)	(0.123)	(0.789)	(0.781)	(0.405)	(0.411)
Flex*H	-0.580**	-0.532*	0.002	0.002	-0.178	-0.190	0.778	1.053	0.066	0.128
	(0.286)	(0.282)	(0.248)	(0.246)	(0.163)	(0.161)	(1.090)	(1.065)	(0.601)	(0.593)
Constant	3.899***	5.565***	3.897***	5.677***	3.856***	5.838***	3.985***	5.736***	3.918***	5.699***
	(0.201)	(1.262)	(0.201)	(1.262)	(0.326)	(1.258)	(0.208)	(1.260)	(0.265)	(1.260)
Observations	726	726	726	726	726	726	726	726	726	726
Controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes

Note: Dependent variables are defined as Y_{i5} : ‘No. of switch-offs’; Y_{i6} : ‘Share of days of delay in payment’. ‘H’ defines the dimension of heterogeneity: Mental const. is H_{i11} : mental constraint index, Smooth consp. is H_{i1} : ability to smooth consumption constructed through PCA, Mgmt fin is H_{i13} : management of financial issues, Time incons is H_{i12} : A dummy variable equal to one when the individual switches to the (higher) future amount later in the short-term frame (tomorrow vs one month), than in the long-term frame (5 vs 6 months), Dist EP is the distance from the nearest Easypaisa agent. Columns 2,4,6,8 include individual controls selected through LASSO between daily rate at the contract start, rental contract at start, respondent’s age, respondent can read and write, any savings, knows the contract rate, knowledge index, distance from Easypaisa agent, index for mental constraints, index for ability to smooth consumption. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

- **RQ3:** What is the average effect of the IIP intervention on repayment performance?

$$y_i = \alpha + \beta_1 IIP_i + X\gamma + \varepsilon_i \quad (3)$$

Table 5: Effect of IIP on repayment performance

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Atleast 1 inactive days	>= Atleast 1 inactive days	Avg inactivity	Avg inactivity	N. of switchoffs	N. of switchoffs	Share delays	Share delays
IIP	-0.006 (0.014)	-0.006 (0.014)	0.021 (0.031)	0.021 (0.031)	0.228 (0.603)	0.228 (0.602)	0.300 (0.300)	0.300 (0.300)
Constant	0.965*** (0.010)	0.965*** (0.010)	0.588*** (0.024)	0.588*** (0.024)	6.514*** (0.500)	6.514*** (0.500)	3.845*** (0.224)	3.845*** (0.224)
Observations	726	726	726	726	726	726	726	726
Controls	No	Yes	No	Yes	No	Yes	No	Yes

Note: Dependent variables are defined as : Y_{i1} : dummy for ‘at least one 1 inactive day(s); Y_{i4} : Average no. of inactive days per month; Y_{i5} : ‘No. of switch-offs’; Y_{i6} : ‘Share of days of delay in payment’. Columns 2,4,6,8 include individual controls selected through LASSO between daily rate at the contract start, rental contract at start, respondent’s age, respondent can read and write, any savings, knows the contract rate, knowledge index, distance from Easypaisa agent, index for mental constraints, index for ability to smooth consumption. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Adjusting critical values following the approach by Anderson (2008): ^{AAA}Significance at 1% level, ^{AA}Significance at 5% level, ^ASignificance at 10% level.

- **RQ4:** What are the sources of heterogeneity of the effects of IIP?

$$y_i = \alpha + \beta_1 IIP_i + \beta_2 IIP_i \times H_i + X\gamma + \varepsilon_i \quad (4)$$

$$y_i = \alpha + \beta_1 Flex_i + \beta_2 IIP_i + \beta_3 IIP_i \times Flex_i + X\gamma + \varepsilon_i \quad (5)$$

Table 6: Sources of heterogeneity of the effects of IIP on inactivity and deactivity

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Panel A: At least 1 inactive days										
H:	Mental const.	Mental const.	Smooth consp.	Smooth consp.	Mgmt fin	Mgmt fin	Time incons	Time incons	Dist EP	Dist EP
IIP	-0.006 (0.014)	-0.007 (0.014)	-0.007 (0.014)	-0.007 (0.014)	-0.016 (0.023)	-0.014 (0.024)	-0.004 (0.015)	-0.004 (0.015)	-0.002 (0.020)	-0.002 (0.020)
H	0.003 (0.009)	-0.000 (0.009)	-0.003 (0.010)	-0.006 (0.011)	-0.005 (0.006)	-0.004 (0.006)	0.000 (0.036)	0.003 (0.038)	0.011 (0.021)	0.009 (0.022)
IIP*H	0.001 (0.014)	-0.001 (0.013)	-0.006 (0.013)	-0.005 (0.013)	0.004 (0.008)	0.003 (0.008)	-0.033 (0.061)	-0.035 (0.063)	-0.010 (0.028)	-0.011 (0.029)
Constant	0.965*** (0.010)	1.023*** (0.065)	0.965*** (0.010)	1.024*** (0.065)	0.977*** (0.017)	1.035*** (0.066)	0.965*** (0.011)	1.023*** (0.065)	0.960*** (0.015)	1.021*** (0.065)
Observations	726	726	726	726	726	726	726	726	726	726
Controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Panel B: Average inactivity										
H:	Mental const.	Mental const.	Smooth consp.	Smooth consp.	Mgmt fin	Mgmt fin	Time incons	Time incons	Dist EP	Dist EP
IIP	0.021 (0.031)	0.027 (0.031)	0.020 (0.032)	0.027 (0.031)	-0.017 (0.055)	-0.009 (0.054)	0.024 (0.033)	0.033 (0.033)	0.002 (0.046)	0.002 (0.045)
H	-0.004 (0.023)	-0.014 (0.023)	-0.012 (0.022)	-0.026 (0.026)	-0.020 (0.013)	-0.025* (0.014)	-0.019 (0.083)	0.000 (0.082)	-0.047 (0.047)	-0.065 (0.047)
IIP*H	0.001 (0.029)	-0.001 (0.029)	-0.006 (0.028)	-0.004 (0.027)	0.014 (0.017)	0.013 (0.016)	-0.051 (0.122)	-0.067 (0.119)	0.043 (0.062)	0.056 (0.061)
Constant	0.588*** (0.024)	0.564*** (0.135)	0.589*** (0.024)	0.565*** (0.134)	0.640*** (0.043)	0.606*** (0.142)	0.590*** (0.026)	0.563*** (0.135)	0.609*** (0.036)	0.573*** (0.137)
Observations	726	726	726	726	726	726	726	726	726	726
Controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes

∞

Note: Dependent variables are defined as : Y_{i1} : dummy for 'at least one 1 inactive day(s); Y_{i4} : Average no. of inactive days per month. 'H' defines the dimension of heterogeneity: Mental const. is H_{i11} : mental constraint index, Smooth consp. is H_{i1} : ability to smooth consumption constructed through PCA, Mgmt fin is H_{i13} : management of financial issues, Time incons is H_{i12} : A dummy variable equal to one when the individual switches to the (higher) future amount later in the short-term frame (tomorrow vs one month), than in the long-term frame (5 vs 6 months), Dist EP is the distance from the nearest Easypaisa agent. .Columns 2,4,6,8 include individual controls selected through LASSO between daily rate at the contract start, rental contract at start, respondent's age, respondent can read and write, any savings, knows the contract rate, knowledge index, distance from Easypaisa agent, index for mental constraints, index for ability to smooth consumption. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 7: Sources of heterogeneity of the effects of IIP on switchoffs and share delays

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Panel A: N. Switchoffs										
H:	Mental const.	Mental const.	Smooth consp.	Smooth consp.	Mgmt fin	Mgmt fin	Time incons	Time incons	Dist EP	Dist EP
IIP	0.239 (0.599)	0.312 (0.607)	0.237 (0.609)	0.308 (0.612)	-0.723 (1.090)	-0.758 (1.099)	0.247 (0.646)	0.371 (0.654)	-0.113 (0.931)	-0.094 (0.915)
H	-0.339 (0.383)	-0.253 (0.386)	0.101 (0.447)	-0.330 (0.543)	-0.211 (0.239)	-0.480* (0.276)	-1.288 (1.162)	-1.233 (1.164)	-1.302 (0.953)	-1.348 (0.947)
IIP*H	0.150 (0.476)	0.087 (0.473)	0.024 (0.519)	0.064 (0.517)	0.382 (0.303)	0.407 (0.301)	-0.735 (1.539)	-0.779 (1.540)	0.817 (1.162)	0.897 (1.115)
Constant	6.498*** (0.496)	5.365** (2.396)	6.508*** (0.507)	5.348** (2.383)	7.064*** (0.928)	6.024** (2.556)	6.633*** (0.541)	5.349** (2.396)	7.085*** (0.780)	5.506** (2.458)
Observations	726	726	726	726	726	726	726	726	726	726
Controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Panel B: Share delays										
H:	Mental const.	Mental const.	Smooth consp.	Smooth consp.	Mgmt fin	Mgmt fin	Time incons	Time incons	Dist EP	Dist EP
IIP	0.305 (0.299)	0.232 (0.296)	0.305 (0.299)	0.240 (0.297)	0.021 (0.509)	-0.011 (0.511)	0.384 (0.312)	0.335 (0.310)	0.754* (0.402)	0.773** (0.394)
H	-0.216 (0.232)	-0.179 (0.241)	0.204 (0.186)	0.125 (0.228)	-0.113 (0.107)	-0.187 (0.115)	-0.119 (0.890)	-0.176 (0.874)	0.547 (0.455)	0.780* (0.472)
IIP*H	0.015 (0.297)	-0.003 (0.295)	-0.478* (0.246)	-0.500** (0.246)	0.106 (0.163)	0.093 (0.164)	-1.281 (1.082)	-1.271 (1.050)	-1.000* (0.605)	-1.205** (0.605)
Constant	3.835*** (0.223)	5.597*** (1.296)	3.833*** (0.224)	5.698*** (1.291)	4.138*** (0.364)	6.089*** (1.293)	3.856*** (0.231)	5.578*** (1.291)	3.605*** (0.290)	5.402*** (1.305)
Observations	726	726	726	726	726	726	726	726	726	726
Controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes

Note: Dependent variables are defined as Y_{i5} : 'No. of switch-offs'; Y_{i6} : 'Share of days of delay in payment'. 'H' defines the dimension of heterogeneity: Mental const. is H_{i11} : mental constraint index, Smooth consp. is H_{i1} : ability to smooth consumption constructed through PCA, Mgmt fin is H_{i13} : management of financial issues, Time incons is H_{i12} : A dummy variable equal to one when the individual switches to the (higher) future amount later in the short-term frame (tomorrow vs one month), than in the long-term frame (5 vs 6 months), Dist EP is the distance from the nearest Easypaisa agent. Columns 2,4,6,8 include individual controls selected through LASSO between daily rate at the contract start, rental contract at start, respondent's age, respondent can read and write, any savings, knows the contract rate, knowledge index, distance from Easypaisa agent, index for mental constraints, index for ability to smooth consumption. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

- **RQ5:** Are IIPs effective in mitigating the negative effects of the flexible payment schedule on people with higher mental constraints?

$$y_i = \alpha + (\beta_1 Flex_i + \beta_2 IIP_i + \beta_3 IIP_i \times Flex_i) \times (1 + \mu H_i) + X\gamma + \varepsilon_i \quad (6)$$

Table 8: Joint effect of IIP and Flex on people with higher mental constraints

	(1) Atleast 1 inactive days	(2) >= Atleast 1 inactive days	(3) Avg inactivity	(4) Avg inactivity	(5) N. of switchoffs	(6) N. of switchoffs	(7) Share delays	(8) Share delays
Flex	0.030 (0.021)	0.029 (0.020)	-0.007 (0.048)	-0.005 (0.046)	-1.608 (0.985)	-1.354 (0.904)	-0.213 (0.442)	-0.089 (0.444)
IIP	0.022 (0.021)	0.020 (0.020)	0.009 (0.047)	0.017 (0.045)	-0.246 (0.972)	0.044 (0.925)	-0.050 (0.418)	-0.069 (0.418)
Flex*IIP	-0.058** (0.029)	-0.055** (0.028)	0.026 (0.063)	0.021 (0.060)	0.997 (1.190)	0.562 (1.105)	0.746 (0.596)	0.622 (0.599)
Mental const (index)	0.017 (0.015)	0.013 (0.015)	-0.001 (0.033)	-0.009 (0.033)	0.058 (0.590)	0.098 (0.580)	0.040 (0.318)	0.027 (0.325)
Flex*IIP* Mental const (index)	-0.025 (0.019)	-0.024 (0.018)	-0.007 (0.046)	-0.010 (0.045)	-0.836 (0.771)	-0.749 (0.788)	-0.495 (0.457)	-0.389 (0.454)
IIP*Mental const (index)	-0.023 (0.019)	-0.024 (0.019)	0.003 (0.042)	-0.004 (0.041)	-0.117 (0.729)	-0.161 (0.720)	0.080 (0.412)	0.107 (0.405)
Flex*IIP*Mental const (index)	0.043 (0.028)	0.043 (0.027)	-0.004 (0.058)	0.006 (0.057)	0.556 (0.958)	0.517 (0.970)	-0.143 (0.587)	-0.236 (0.575)
Constant	0.950*** (0.017)	1.005*** (0.070)	0.591*** (0.038)	0.566*** (0.139)	7.269*** (0.831)	5.803** (2.522)	3.928*** (0.337)	5.568*** (1.286)
Observations	726	726	726	726	726	726	726	726
Controls	No	Yes	No	Yes	No	Yes	No	Yes

Note: Dependent variables are defined as : Y_{i1} : dummy for ‘at least one 1 inactive day(s)’, Y_{i4} : Average no. of inactive days per month; Y_{i5} : ‘No. of switch-offs’; Y_{i6} : ‘Share of days of delay in payment’. Columns 2,4,6,8 include individual controls selected through LASSO between daily rate at the contract start, rental contract at start, respondent’s age, respondent can read and write, any savings, knows the contract rate, knowledge index, distance from Easypaisa agent, index for mental constraints, index for ability to smooth consumption. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

- **RQ6:** What are the determinants of repayment frequency? What is the effect of the actual repayment schedule on repayment performance?

We explore the determinants of repayment frequency by running 6 on the average number of payments in a month over the study period.

We estimate the effect of the actual repayment schedule using Local Average Treatment Effects

(LATE). We will use the contractual feature treatment as an instrument for the actual repayment frequency

$$y_i = \alpha_1 + \beta_1 Freq_i + X\gamma + \varepsilon_i \quad (7)$$

$$Freq_i = \alpha_2 + \beta_2 Flex_i + X\gamma + \varepsilon_i \quad (8)$$

Table 9: Effect of actual repayment schedule on repayment performance

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Atleast 1 inactive days	>= Atleast 1 inactive days	Avg inactivity	Avg inactivity	N. of switchoffs	N. of switchoffs	Share delays	Share delays
Freq.	0.044 (0.236)	0.037 (0.222)	-0.127 (0.590)	-0.122 (0.564)	16.056 (20.220)	15.306 (18.516)	-3.826 (7.062)	-4.126 (7.155)
Constant	0.905*** (0.300)	0.996*** (0.173)	0.761 (0.749)	0.656 (0.402)	-13.757 (25.729)	-4.575 (13.774)	8.875 (8.992)	8.416 (5.135)
Observations	726	726	726	726	726	726	726	726
Controls	No	Yes	No	Yes	No	Yes	No	Yes

Note: Dependent variables are defined as : Y_{i1} : dummy for ‘at least one 1 inactive day(s)’, Y_{i4} : Average no. of inactive days per month; Y_{i5} : ‘No. of switch-offs’; Y_{i6} : ‘Share of days of delay in payment’. Columns 2,4,6,8 include individual controls selected through LASSO between daily rate at the contract start, rental contract at start, respondent’s age, respondent can read and write, any savings, knows the contract rate, knowledge index, distance from Easypaisa agent, index for mental constraints, index for ability to smooth consumption. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

- **RQ8:** *Are the repayment contractual features (fix vs flex) affecting customers’ dropout?*

The research question is addressed by estimating regression 1 with dropout over the evaluation period as a dependent variable.

Robustness check:

- Including enumerator fixed effects in RQ1
- Calculation of sharpened q-values to correct for multiple hypothesis testing for RQ1, RQ3, RQ6 and R8, indicating significant q-values for coefficients of interest in tables shown above, with A, AA, AAA in superscript to for significance levels 10%, 5% and 1%, respectively. Note, results are statistically insignificant on average, and remain so after MHT correction.

Table 10: Effect of repayment contractual features on drop-out

	(1)	(2)
Flex	0.001 (0.037)	-0.003 (0.035)
Constant	0.559*** (0.026)	0.526*** (0.102)
Observations	726	726
Controls	No	Yes

Note: Dependent variable is dummy variable =1 if the customer dropped out (cancelled the contract). Column 2 includes individual controls selected through LASSO between daily rate at the contract start, rental contract at start, respondent's age, respondent can read and write, any savings, knows the contract rate, knowledge index, distance from Easypaisa agent, index for mental constraints, index for ability to smooth consumption. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 11: Robustness: Effect of flexibility on repayment performance with enumerator fixed effects

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Atleast 1 inactive days	>= Atleast 1 inactive days	Avg inactivity	Avg inactivity	N. of switchoffs	N. of switchoffs	Share delays	Share delays
Flex	-0.002 (0.014)	-0.002 (0.014)	0.012 (0.031)	0.011 (0.030)	-0.955* (0.563)	-0.912* (0.548)	0.234 (0.298)	0.280 (0.298)
Constant	1.001*** (0.007)	1.056*** (0.068)	0.825*** (0.118)	0.811*** (0.179)	14.264*** (3.321)	13.647*** (3.739)	3.225*** (0.627)	5.060*** (1.406)
Observations	726	726	726	726	726	726	726	726
Controls	No	Yes	No	Yes	No	Yes	No	Yes

Note: Dependent variables are defined as : Y_{i1} : dummy for 'at least one 1 inactive day(s); Y_{i4} : Average no. of inactive days per month; Y_{i5} : 'No. of switch-offs'; Y_{i6} : 'Share of days of delay in payment'. Columns 2,4,6,8 include individual controls selected through LASSO between daily rate at the contract start, rental contract at start, respondent's age, respondent can read and write, any savings, knows the contract rate, knowledge index, distance from Easypaisa agent, index for mental constraints, index for ability to smooth consumption. All specifications include enumerator fixed-effects. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Adjusting critical values following the approach by Anderson (2008): ^{AAA}Significance at 1% level, ^{AA}Significance at 5% level, ^ASignificance at 10% level.