

Why Are Small Businesses Slow to Adopt Profitable Opportunities?

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- Across many domains:
 - Manufacturing (Atkin, Chaudhry, Chaudry, Khandelwal, and Verhoogen, [2017](#); Giorcelli, [2019](#))
 - Banking (Mishra, Prabhala, and Rajan, [2021](#))
 - Retail (DellaVigna and Gentzkow, [2019](#))
 - Healthcare (Celhay, Gertler, Giovagnoli, and Vermeersch, [2019](#))

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 - Healthcare (Celhay, Gertler, Giovagnoli, and Vermeersch, [2019](#))
- And across various types of opportunities:
 - Cost-saving technologies (Atkin, Chaudhry, Chaudry, Khandelwal, and Verhoogen, [2017](#))
 - Management practices (Bloom, Eifert, Mahajan, McKenzie, and Roberts, [2013](#); Bruhn, Karlan, and Schoar, [2018](#))
 - Optimal pricing (DellaVigna and Gentzkow, [2019](#))

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 - Large retail chains in DellaVigna and Gentzkow (2019) forgo \$16M in annual profits (2% of revenue)

Why?

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 - “Stickiness in organizational structures and practices” (Mishra, Prabhala, and Rajan, [2021](#))

This Project

Research question: Why do firms exhibit inertia in organizational practices even though these behaviors reduce their profits?

- Even in the absence of informational frictions, fixed costs, or misaligned incentives

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Method:

- Randomized controlled trial (RCT) in Mexico to test three potential explanations:
 - Limited memory
 - Present bias
 - Lack of trust
 - ...as well as potentially distorted beliefs about these
- Offer lower merchant fee to 33,978 firms already using FinTech payments technology
- For the median firm, expected reduction in fee equal to 3% of profits ▶ [Variation](#)

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Method:

- Randomize:
 - Value of offer (how much we reduce merchant fee)
 - Deadlines
 - Reminders
 - Whether FinTech says in advance that it will send a reminder (“anticipated reminder”)
- RCT design motivated by augmented version of Ericson (2017) model
 - How present bias and limited memory affect task completion
 - We augment the model to include trust

This Project: Examples of Treatments

No Reminder/Unanticipated Reminder, No Deadline



Hi, [REDACTED]:

We have great news for you!


Here at [REDACTED], we care the most about our clients' well-being and their businesses. Thanks to your continuous use, we are offering a promotion so you can use [REDACTED] even more. We will lower your merchant fee with card transactions to **2.75% + VAT until March 31 2021***.

To activate the promotion you will have to enter the following link and fill the form with your e-mail registered in [REDACTED].

[Form to change merchant fee*](#)

This offer will only take 1 minute to complete.

Anticipated Reminder, Deadline



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To activate the promotion you will have to enter the following link and **fill the form by October 6** with your e-mail registered in [REDACTED].

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This offer will only take 1 minute to complete.

You will receive **a reminder on October 5** if you still haven't activated the promotion.

Preview of Findings

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 - Evidence that present bias does not explain non-adoption
- Anticipated reminders do not reduce initial take-up
 - Evidence of overconfidence about memory ▶ [Model predictions](#)
- Anticipated reminders ↗ final take-up more than unanticipated reminders
 - By an additional 7%
 - Anticipated reminders change firms' perceptions of the offer's value
 - Effect of anticipated reminder concentrated among low-trust firms

Model

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- We add the probability the firm assigns to the offer being true, $\alpha_t \in [0, 1]$

Model

- Cost c_t drawn each period from a known distribution $F(c)$
- Agent decides to act based on current value function:

$$V_t = \begin{cases} \beta\delta\alpha_t y - c_t & \text{if act} \\ \hat{\rho}_{t+1}\beta\delta E_t[\hat{V}_{t+1}] & \text{if do not act} \end{cases}$$

- $E_t[\hat{V}_{t+1}]$ is the perceived continuation value
 - E_t denotes expectations over future cost draws
 - The hat on $E_t[\hat{V}_{t+1}]$ denotes that it's a function of $\hat{\beta}$ rather than β

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$$c_t^* = \beta \delta (\alpha_t y - \hat{\rho}_{t+1} E_t [V_{t+1}])$$

$$E_{t-1} [V_t] = F(\hat{c}_t^*) [\delta \alpha_t y - E[\hat{c}|\text{act}]] + (1 - F(\hat{c}_t^*)) \delta \hat{\rho}_{t+1} E_t [V_{t+1}]$$

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- The probability of adopting at period t is:

$$\Pr(\text{adopt at } t) = \underbrace{\prod_{j=1}^t \rho_j}_{\Pr(\text{remember})} \underbrace{\prod_{k=0}^{t-1} (1 - F(c_k^*))}_{\Pr(\text{not adopted before } t)}$$

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5. Anticipated reminders and post-reminder take-up:
 - Do not affect take-up compared to unanticipated reminder if firms inherently trust the offer ($\alpha_t = 1$)
 - ↗ post-reminder take-up compared to unanticipated reminder if some firms distrust offer and if anticipated reminder ↗ trust

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- Merchant fee is a percent of the sale that firm pays to accept e-payments
- Prior to our experiment, firms paid 3.5% or 3.75% merchant fee ▶ [Knowledge of fee](#)
- In experiment, offer 2.75% or 3% fee (randomly determined) for next 6 months

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Logistics

- Messages sent by FinTech company via email and SMS
- Online form to accept lower fee; takes about one minute to complete
- Owner of firm was email recipient for 88% of sample

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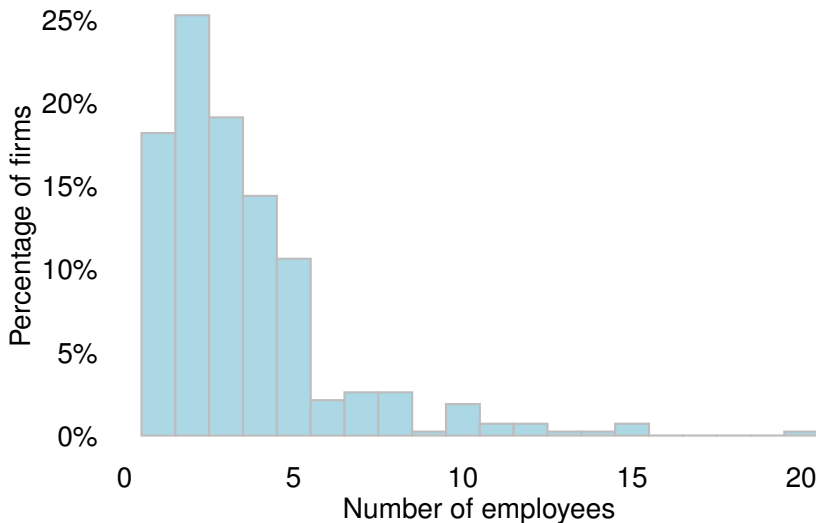
- Sample of 33,978 firms made up of top quartile of FinTech company's users
 - To ensure that offer would be sufficiently valuable
- Main outcome is take-up from administrative data
- Survey a small subsample of firms ($N = 429$) to explore mechanisms

Example of a Firm



Firm characteristics: Number of employees

- Mean = 3.5 employees; median = 3 employees (from survey data)



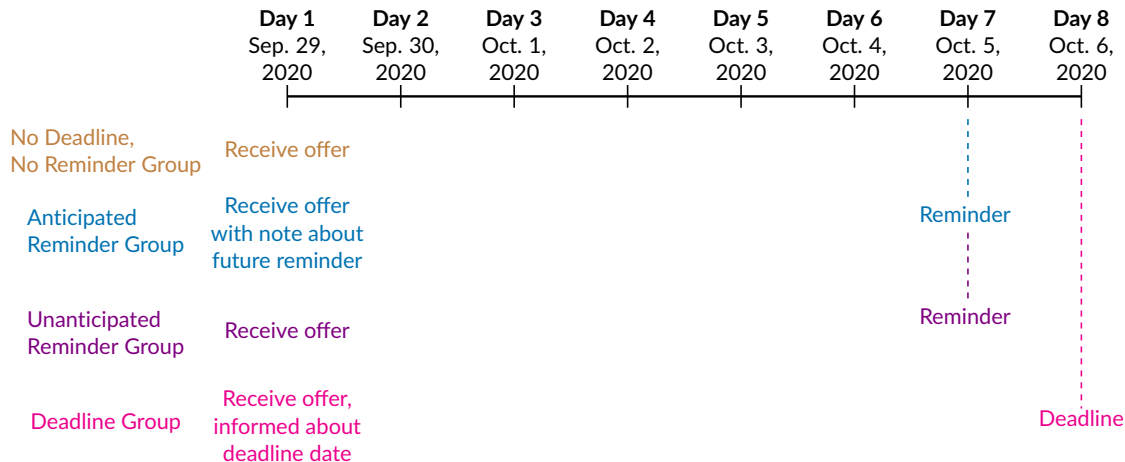
Firm characteristics and balance

$$y_i = \beta_0 + \beta_1 \mathbb{1}(\text{Ant. remind})_i + \beta_2 \mathbb{1}(\text{Unant. remind})_i + \beta_3 \mathbb{1}(\text{Deadline})_i + \beta_4 \mathbb{1}(\text{2.75\% Fee})_i + \varepsilon_i$$

	Intercept	Anticipated reminder	Unanticipated reminder	Deadline	2.75% Fee	F-stat p-value
<i>Owner characteristics</i>						
Owner sex female	0.442***	0.002	-0.003	-0.003	0.002	0.925
Owner age	39.40***	0.29*	0.23	-0.01	-0.03	0.367
<i>Business type</i>						
Beauty	0.087***	0.000	0.000	0.002	0.000	0.988
Clothing	0.089***	0.000	0.001	0.000	0.000	1.000
Professionals	0.239***	-0.001	-0.001	0.001	0.000	0.999
Restaurants	0.123***	0.001	0.002	0.000	-0.001	0.996
Small retailers	0.260***	-0.001	-0.001	0.001	0.000	0.999
Other	0.202***	0.002	0.000	-0.003	0.001	0.969
<i>Pre-treatment sales variables</i>						
Months since first transaction	24.11***	0.10	0.11	-0.08	0.12	0.930
% months business made sales	0.819***	-0.001	-0.001	0.002	0.001	0.939
Log average monthly sales volume	8.794***	-0.020	0.008	0.008	-0.005	0.501
Log average monthly transactions	2.059***	-0.009	0.001	0.008	0.003	0.968

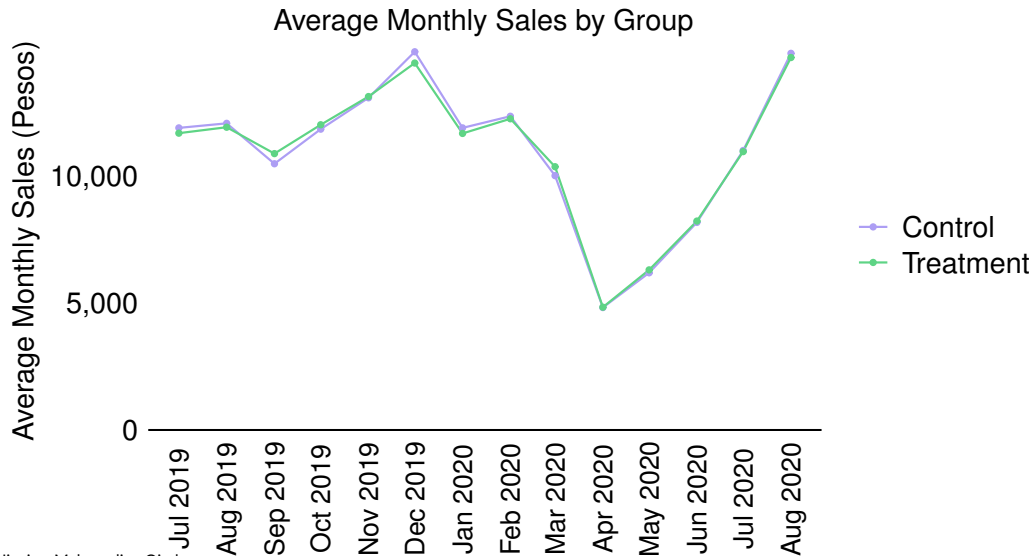
► Percent of sales through FinTech platform

Experimental Design and Timeline



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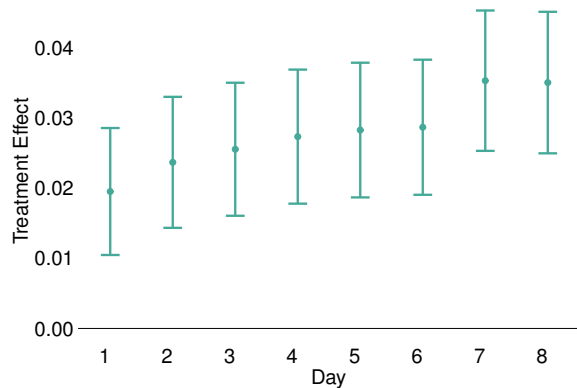
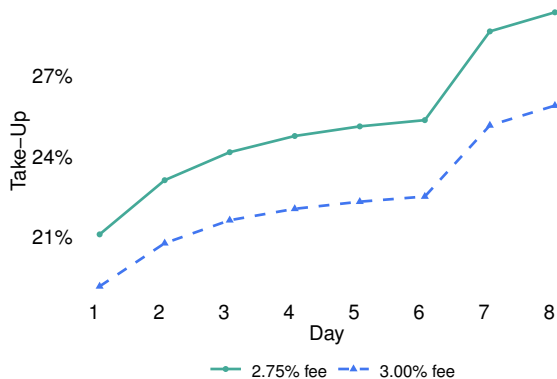
- Offers sent when sample on average back to pre-pandemic sales



Results

Higher Value Increases Take-Up

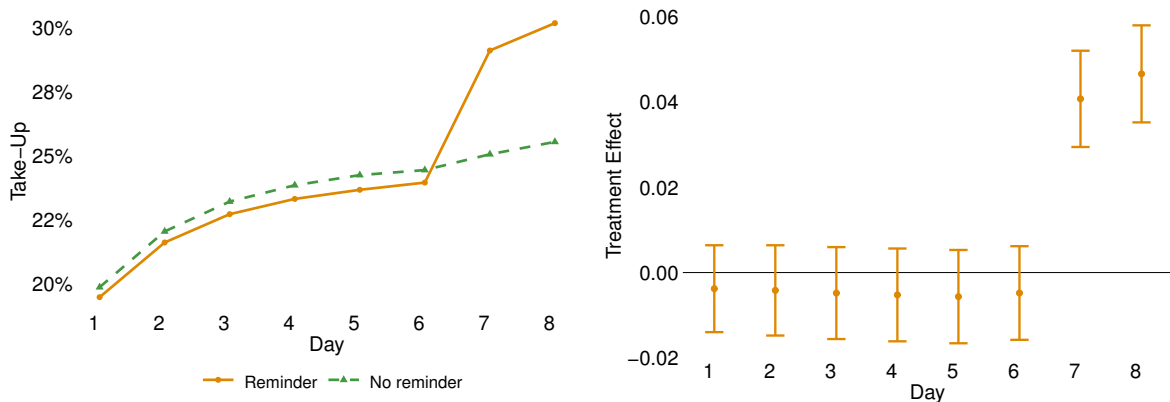
- Random variation in value of offer (2.75% fee better than 3% fee)



► Conditional on opening first email ► Longer-term take-up ► Not 100%

Reminders Increase Take-Up

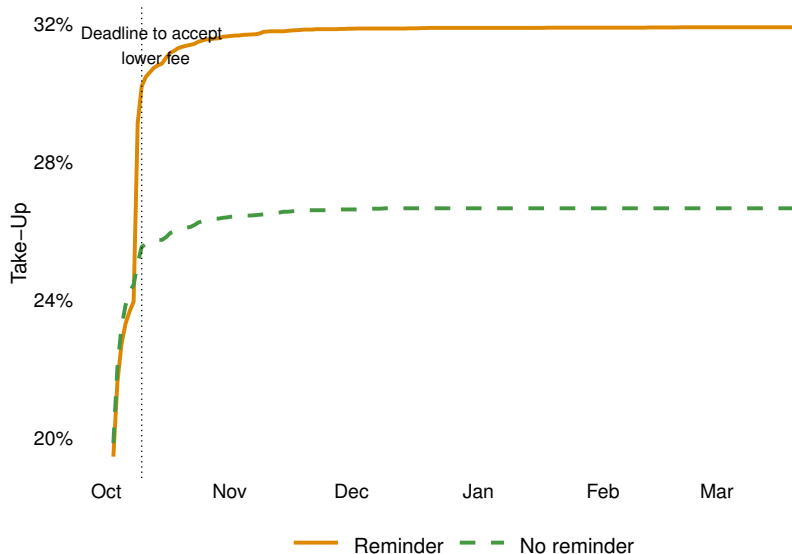
- Reminder ↗ take-up 5 pp compared to ~26% in no reminder group



► Conditional on opening first email ► By value of offer ► By deadline vs. no deadline ► By baseline sales ► Not 100%

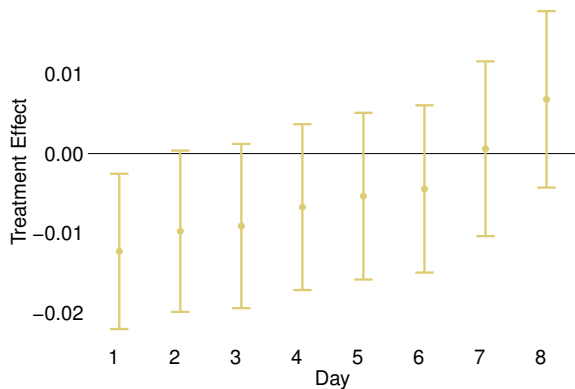
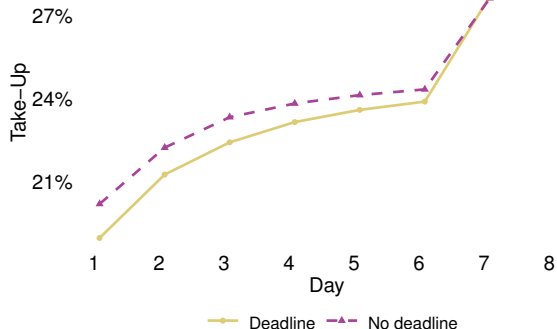
Reminders Increase Take-Up Beyond Deadline

- Reminder effect persists over time



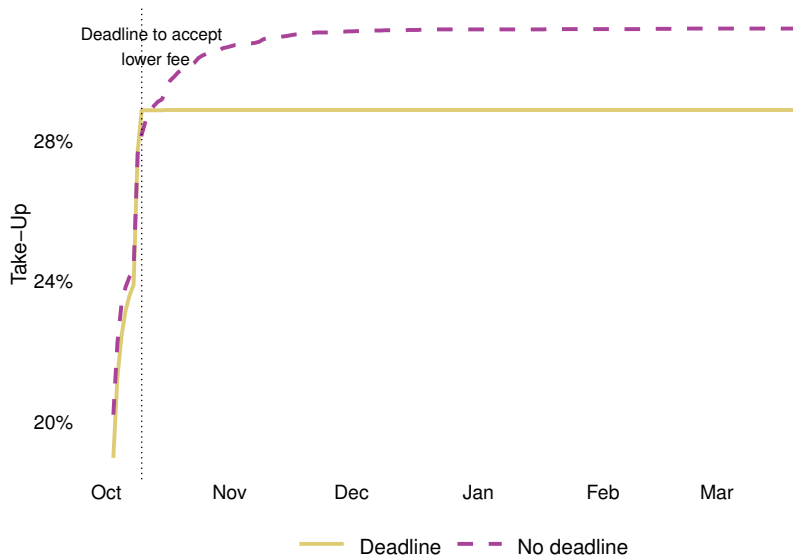
Deadlines Do Not Increase Take-Up

- Deadline ↘ day 1 take-up, but no difference by day 8
- Positive point estimate on day 8, but no deadline catches up quickly after deadline



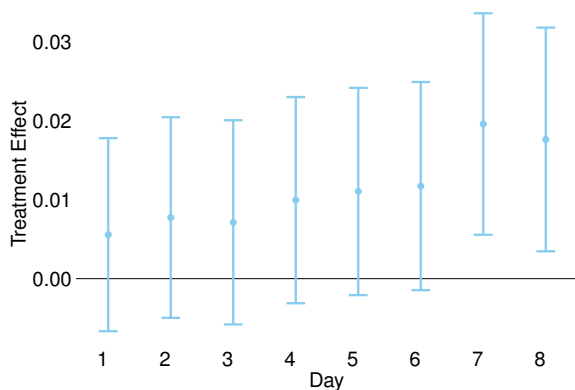
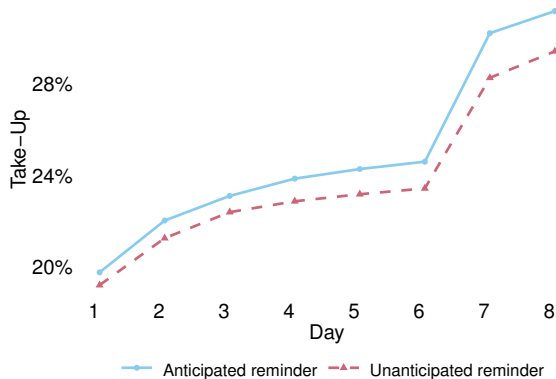
► Conditional on opening first email ► By value of offer ► By reminder vs. no reminder ► By reminder type ► By baseline sales ► Not 100%

Continued Take-Up After Deadline in No Deadline Group



Anticipated Reminders Increase Take-up

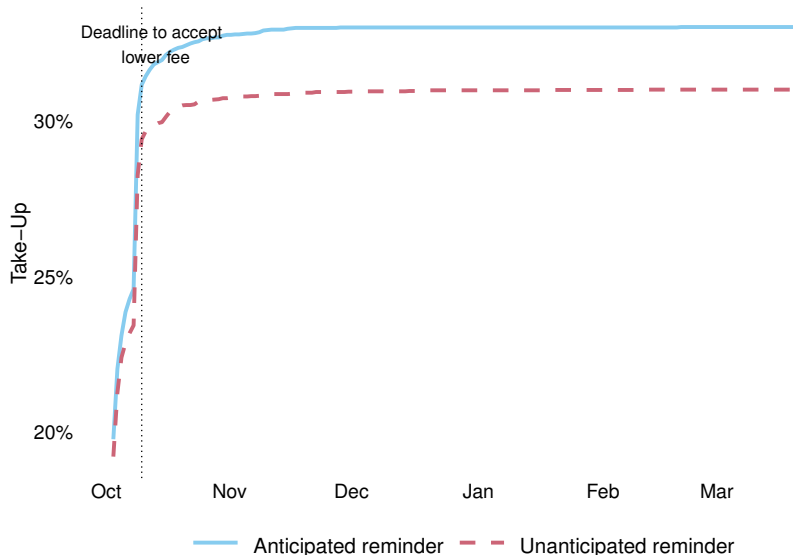
- Anticipated reminders do not reduce take-up on day 1
- Anticipated reminders \nearrow take-up 2 pp more than unanticipated by day 8



► Conditional on opening first email ► By value of offer ► By deadline vs. no deadline ► By baseline sales ► Not 100%

Anticipated Reminders Increase Take-up Beyond Deadline

- Anticipated reminder effect persists over time

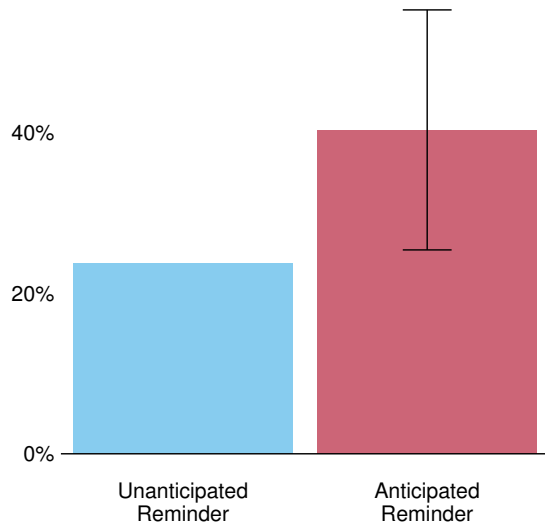


Mechanisms Behind Anticipated Reminder Effect

Anticipated Reminders Increase Perception of Offer's Value

- Survey question: "Did the reminder change your perception of the offer's value?"

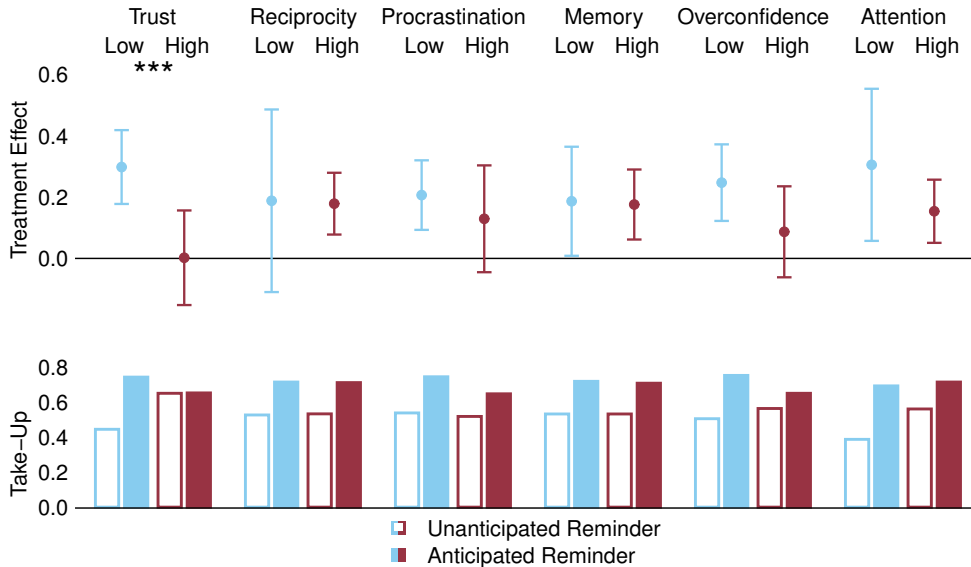
▸ Logins ▸ Survey balance ▸ Survey response balance



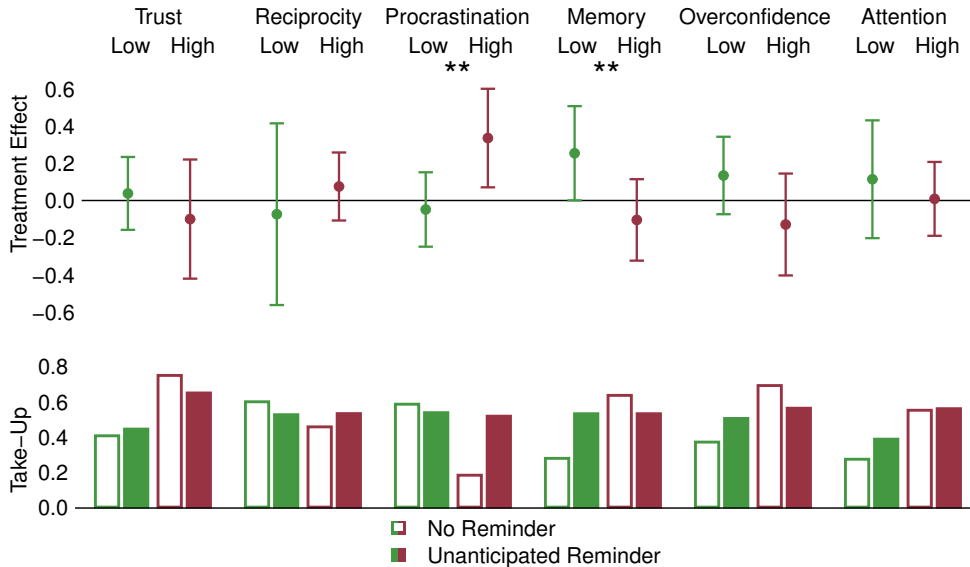
Heterogeneity Tests Using General Survey Measures

- **Trust:** I trust advertised offers
- **Reciprocity:** I am more inclined to do business with people who live up to their promises
- **Procrastination:** I tend to postpone tasks, even when I know it is better to do them immediately
- **Memory:** I tend to have good memory about pending tasks that I have to do and complete
- **Overconfidence:** I tend to think my memory is better than it really is
- **Attention:** I can focus completely when I have to finish a task
- 1–5 scale; code dummy as “High” if agree or completely agree, “Low” otherwise

Anticipated Reminder Effect Concentrated Among Less-Trusting

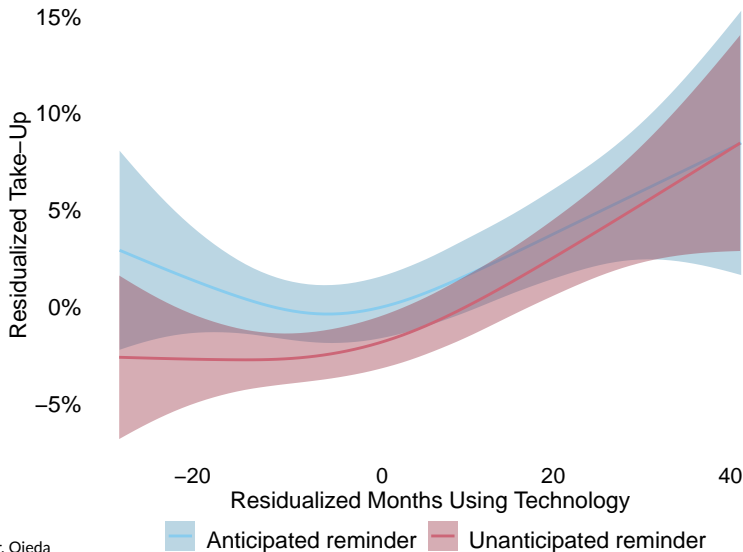


Unanticipated Reminder Effect Concentrated Among Low-Memory



Anticipated Reminder Effect Concentrated Among Less-Trusting

- Firms that have used the technology longer likely have higher trust in FinTech company



Elasticity of Electronic Payments

E-payment Usage Elasticity

How does e-payment usage respond to lower merchant fee?

$$y_{it} = \gamma_i + \delta_t + \beta \mathbf{Treated}_i \times \mathbf{Post}_t + \varepsilon_{it}$$

- y_{it} : $\log(\text{sales} + 1)_{it}$, $\log(\# \text{ transactions} + 1)$ or $\mathbb{1}(\text{Made at least 1 sale})_{it}$

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- Standard errors clustered at firm level

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How does e-payment usage respond to lower merchant fee?

$$y_{it} = \gamma_i + \delta_t + \beta \textit{Treated}_i \times \textit{Post}_t + \varepsilon_{it}$$




- y_{it} : $\log(\text{sales} + 1)_{it}$, $\log(\# \text{ transactions} + 1)$ or $\mathbb{1}(\text{Made at least 1 sale})_{it}$
- Standard errors clustered at firm level
- To calculate treatment-on-the-treated (TOT):
 - Replace $\textit{Treated}_i \times \textit{Post}_t$ with $\textit{Adopt}_i \times \textit{Post}_t$
 - Instrument $\textit{Adopt}_i \times \textit{Post}_t$ with $\textit{Treated}_i \times \textit{Post}_t$

Lower Merchant Fee Leads to Increased Usage (Intent-to-Treat)

- Being treated ↗ electronic sales by $\sim 10\%$
- ↗ number of card transactions by $\sim 3\%$
- ↗ probability of using technology by 1 pp

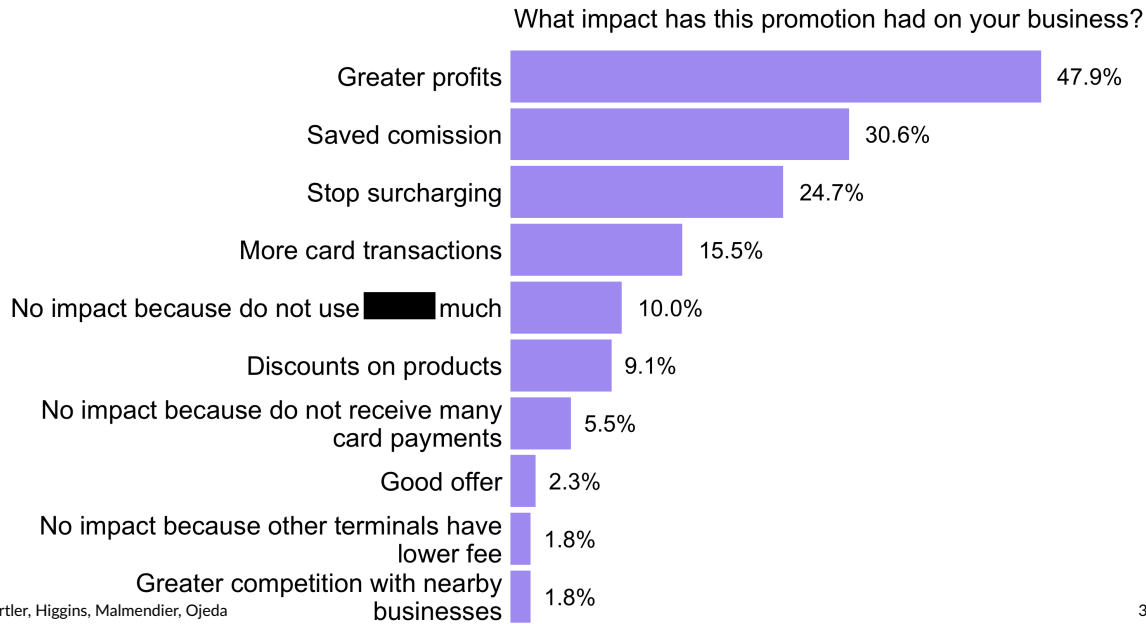
	Log(sales + 1)	Log(# transactions + 1)	Made at least 1 sale
Post * Treated	0.103** (0.047)	0.028* (0.016)	0.010** (0.005)
Num. Obs.	662162	662162	662162
Num. Firms	33998	33998	33998
Cluster Std. Errors	Firm	Firm	Firm
Fixed Effects	Firm & month	Firm & month	Firm & month
Control Mean (levels)	21946.04	18.08	0.81
Control Mean (levels, winsorized)	11286.71	18.08	0.81

Lower Merchant Fee Leads to Increased Usage (TOT)

- Taking up offer  electronic sales by $\sim 40\%$
- Electronic sales elasticity = $\frac{\% \Delta \text{Sales}}{\% \Delta \text{Fee}} \approx \frac{40\%}{-20\%} = -2$
-  increases number of card transactions by $\sim 10\%$
-  increases probability of using technology by ~ 4 pp

	Log(sales + 1)	Log(# transactions + 1)	Made at least 1 sale
Post * Adopted	0.355** (0.162)	0.098* (0.057)	0.036** (0.017)
Num. Obs.	662162	662162	662162
Num. Firms	33998	33998	33998
Cluster Std. Errors	Firm	Firm	Firm
Fixed Effects	Firm & month	Firm & month	Firm & month
Control Mean (levels)	21946.04	18.08	0.81
Control Mean (levels, winsorized)	11286.71	18.08	0.81

Mechanisms Behind Elasticity



Conclusion

- Forgetfulness, overconfidence about memory, and a lack of trust can prevent firms from adopting a profitable opportunity

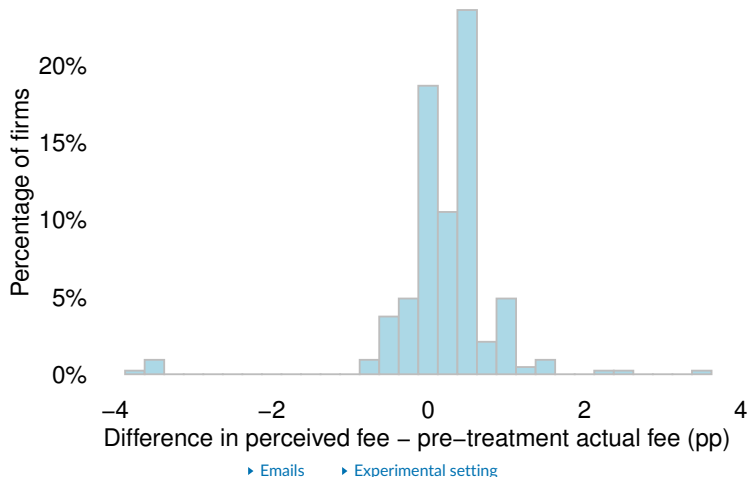
Conclusion

- Forgetfulness, overconfidence about memory, and a lack of trust can prevent firms from adopting a profitable opportunity
- Analysis of slow firm adoption of profitable opportunities will benefit from considering mechanisms beyond standard economic frictions
 - Well-known behavioral determinants of individuals failing to act can affect firms
 - Evidence that lack of trust is a key friction
 - Lack of trust may be prevalent in many firm-to-firm interactions

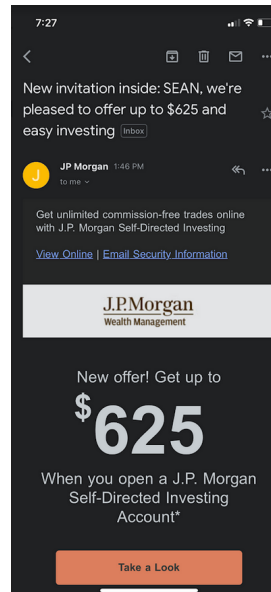
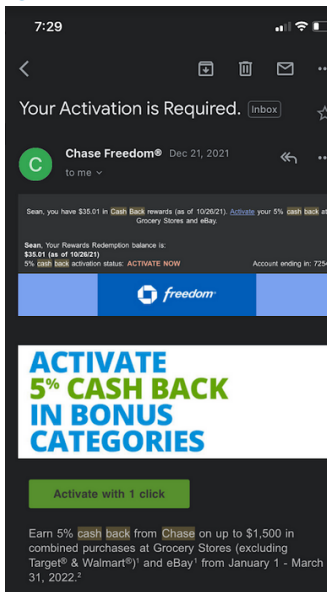
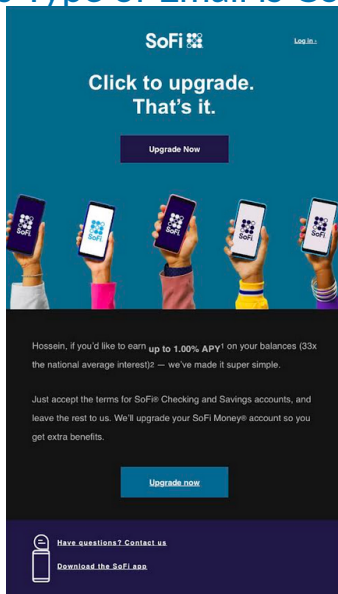
Appendix

Firms have a good sense of their current fee

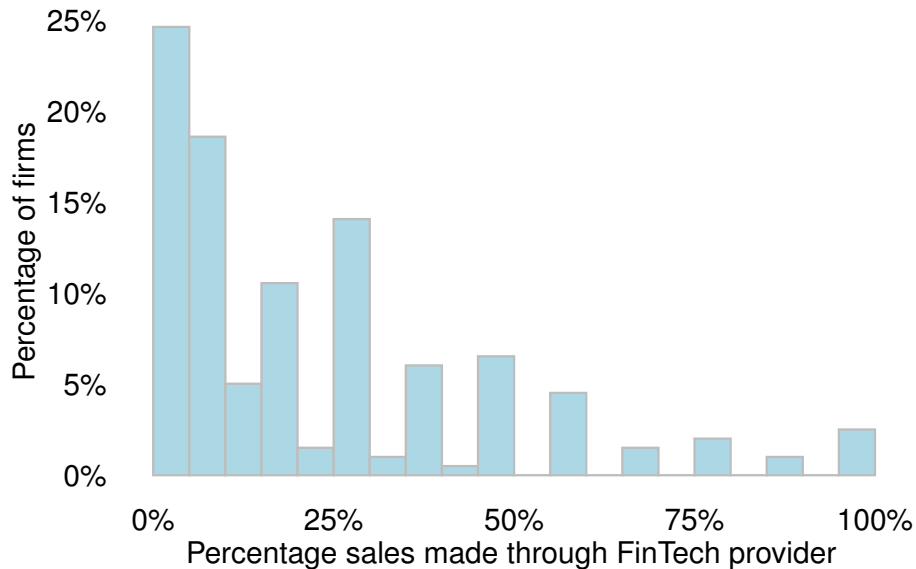
- And are more likely to overestimate current fee
 - Which would make them think offer is even more valuable



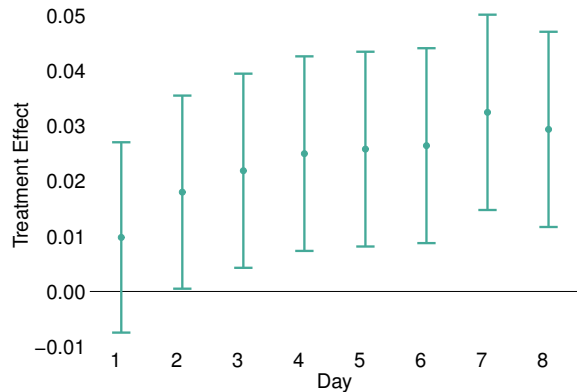
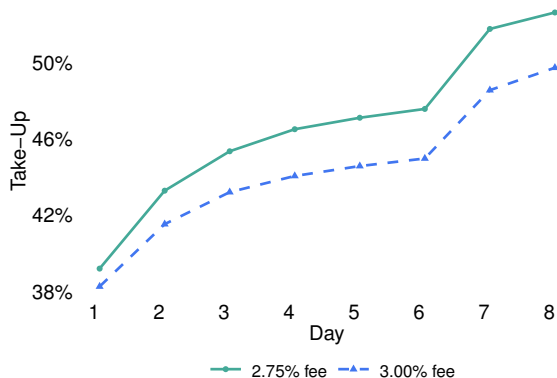
This Type of Email is Common



Percent of sales made through FinTech provider last week



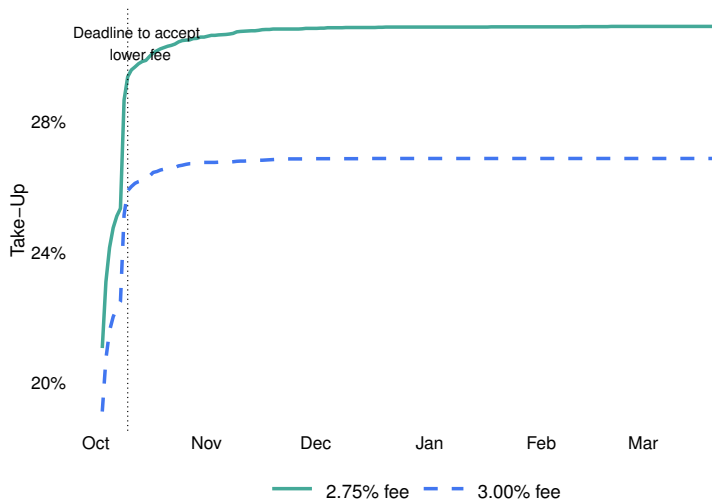
Higher Value Increases Take-Up Conditional on Opening First Email



► Unconditional

Higher Value Increases Take-up Beyond Deadline

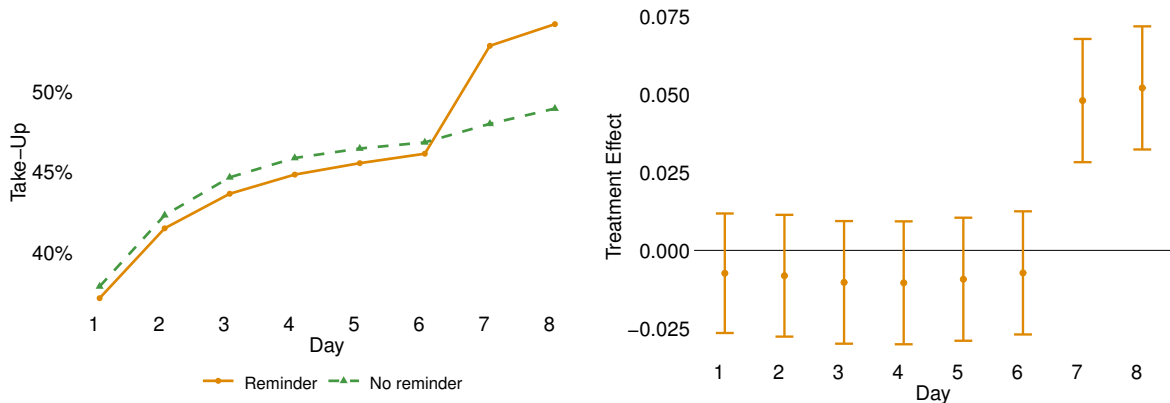
- Higher value effect persists over time



► By deadline

Reminders Increase Take-Up Conditional on Opening First Email

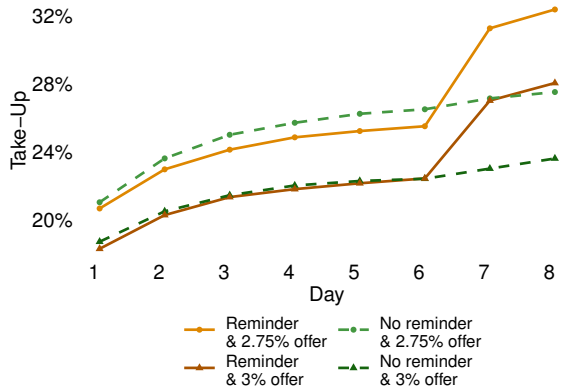
- Reminder ↗ take-up 5 pp conditional on opening first email



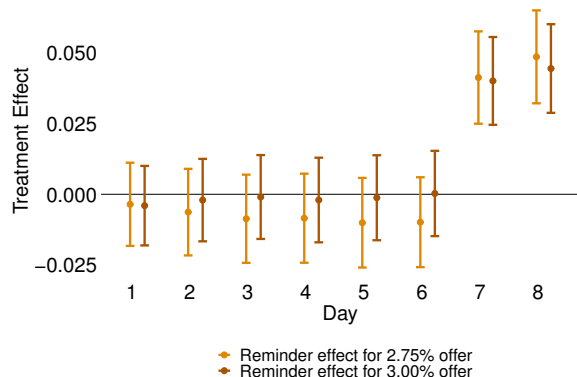
► Unconditional

Effect of Reminder by Offer Value

- Reminders ↗ take-up regardless of offer value



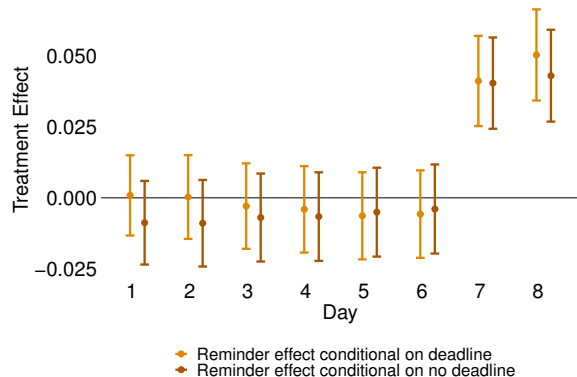
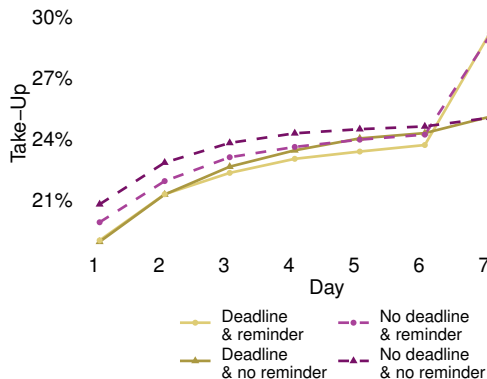
► Pooled across value of the offer



► Conditional on opening first email

Reminder Conditional on Deadline

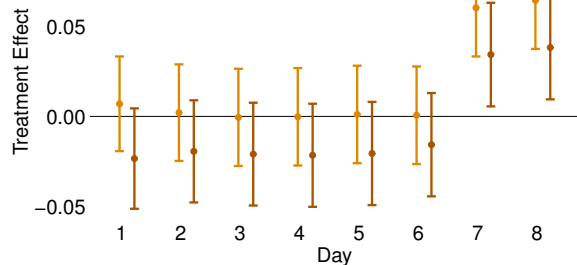
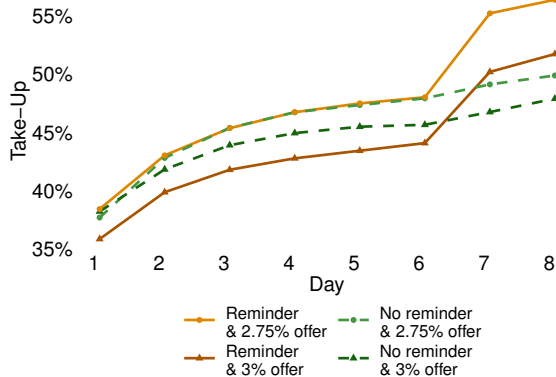
- Reminders ↗ take-up regardless of deadline



► Effect of reminder

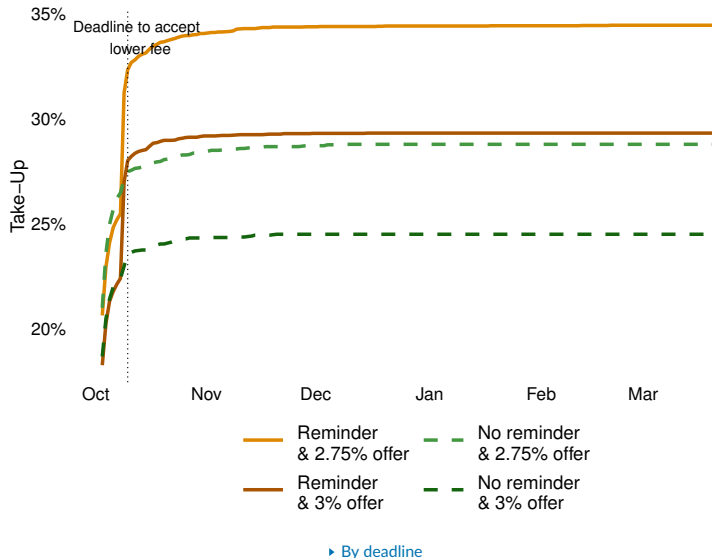
► Effect of deadline

Effect of Reminder by Offer Value Conditional on Opening Email

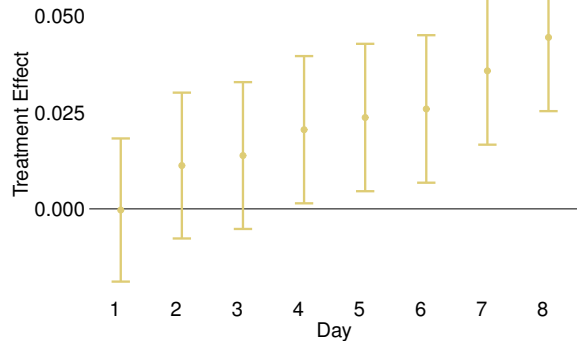
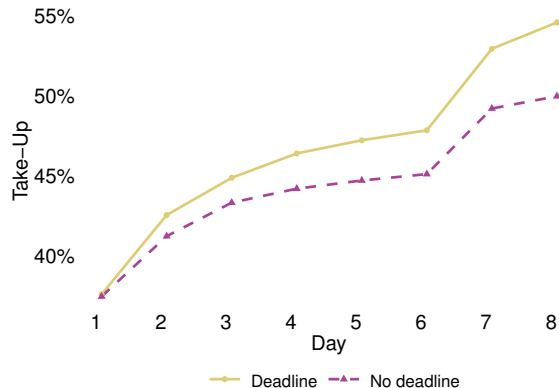


► Unconditional

Six-Month Effect of Reminder by Offer Value



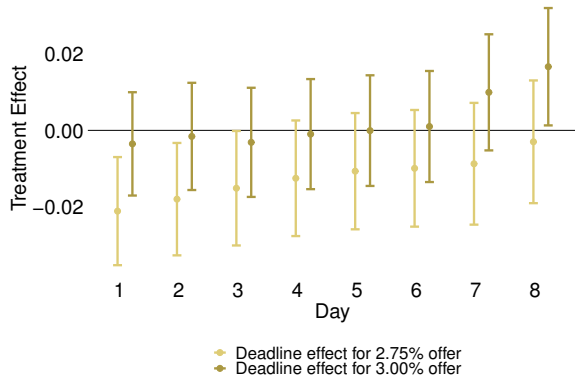
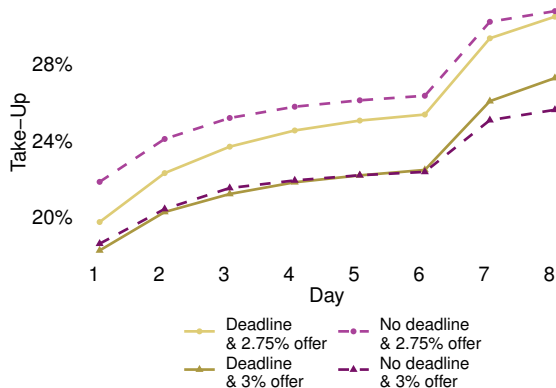
Effect of Deadline Conditional on Opening Email



► Unconditional

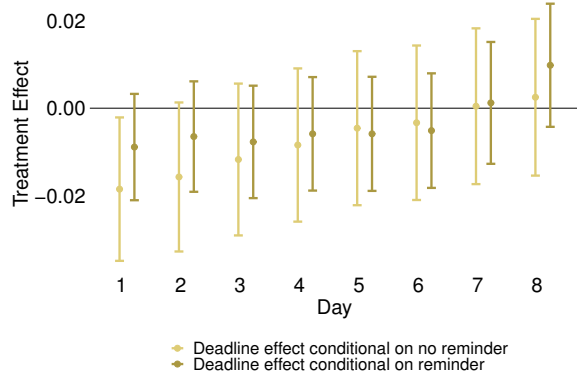
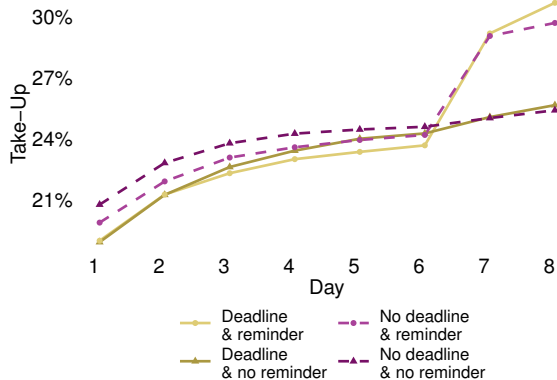
Effect of Deadline by Offer Value

- Within lower-value offer (3.00% fee), deadline ↗ take-up 2 pp
- Within higher-value offer (2.75% fee), deadline has no effect



► Pooled across value of the offer ► Conditional on opening first email ► Longer-term take-up

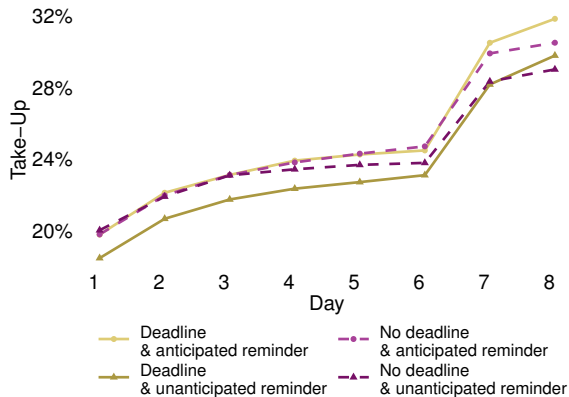
Deadline Conditional on Reminder



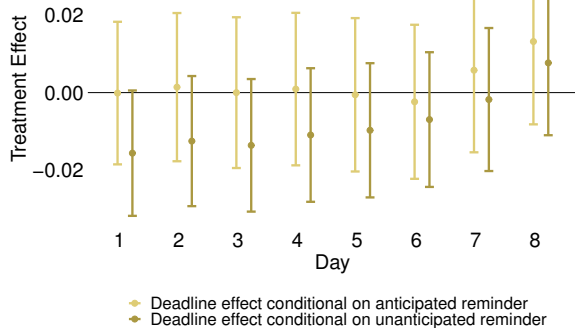
► Effect of reminder

► Effect of deadline

Deadline Conditional on Anticipated Reminder

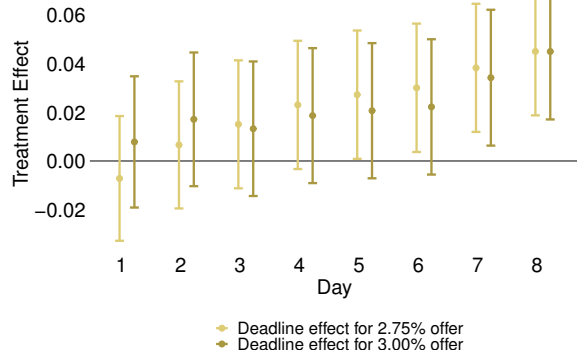
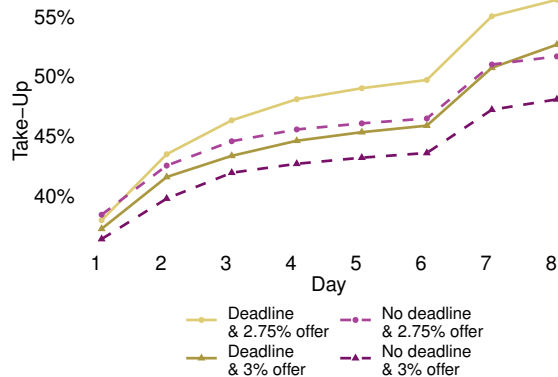


► Effect of anticipated reminder



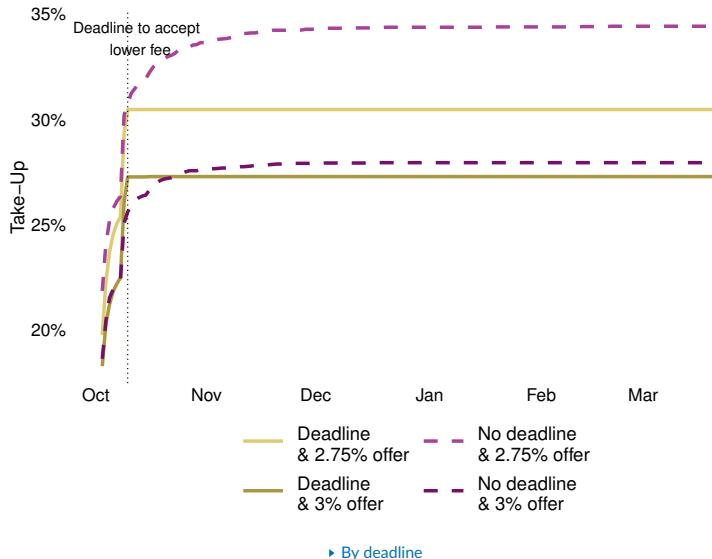
► Effect of deadline

Effect of Deadline by Offer Value Conditional on Opening Email

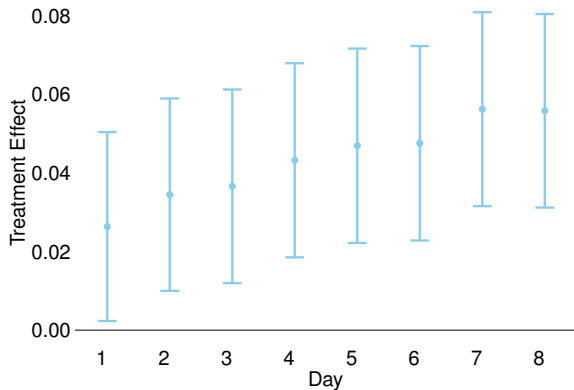
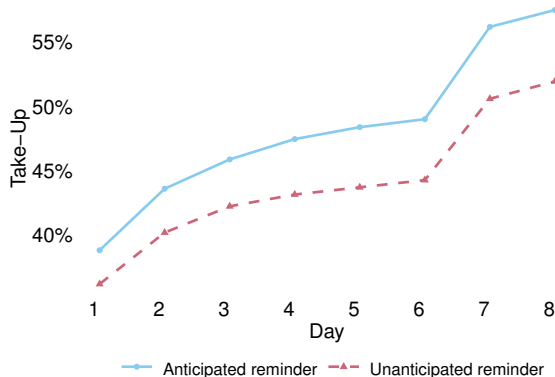


► Unconditional

Six-Month Effect of Deadline by Offer Value



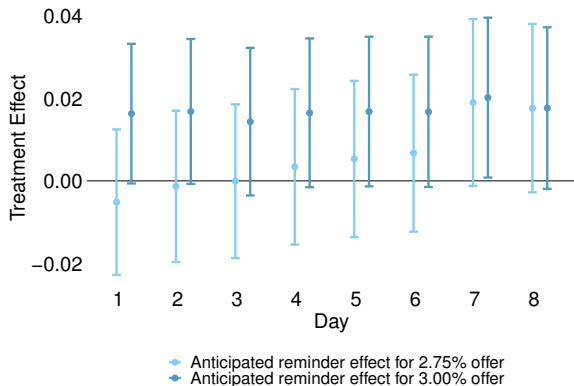
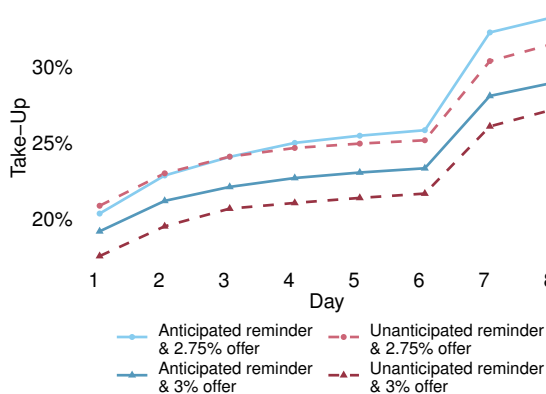
Anticipated Reminder \nearrow Take-Up Conditional on Opening Email



► Unconditional

Effect of Anticipated Reminder by Offer Value

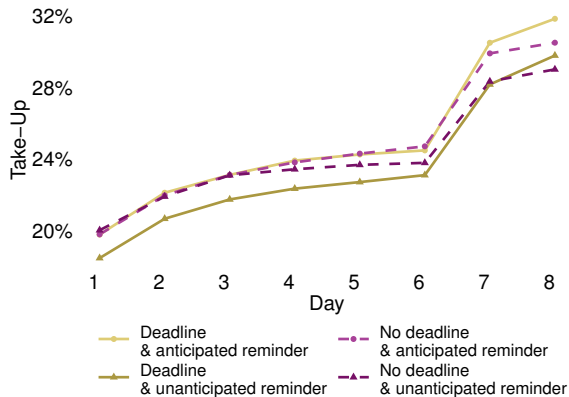
- Anticipated reminders appear to ↗ take-up regardless of offer value
 - Cannot reject that effect is the same regardless of deadline



► Pooled across value of the offer ► Conditional on opening first email ► Longer-term take-up

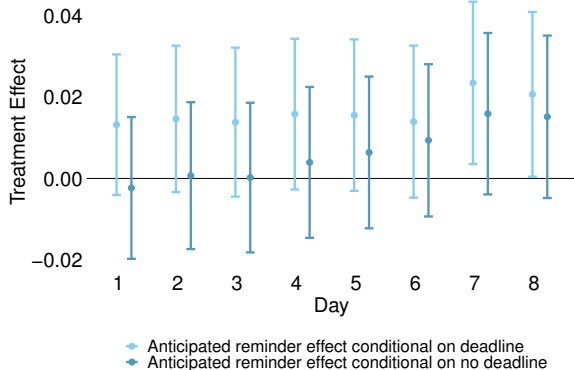
Anticipated Reminder Conditional on Deadline

- Anticipated reminders appear to ↗ take-up regardless of deadline
 - Cannot reject that effect is the same regardless of deadline

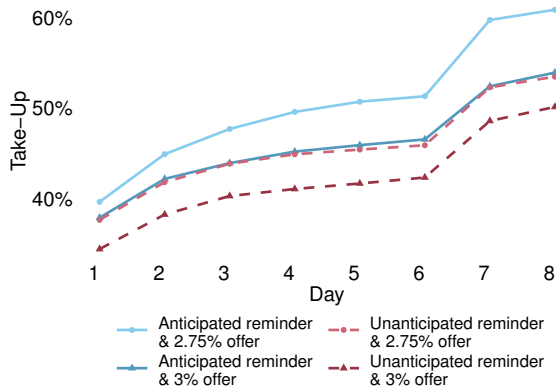


► Effect of anticipated reminder

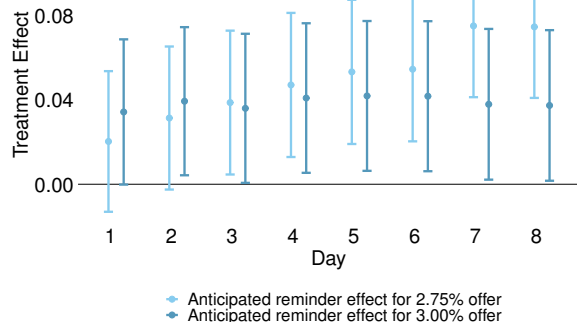
► Effect of deadline



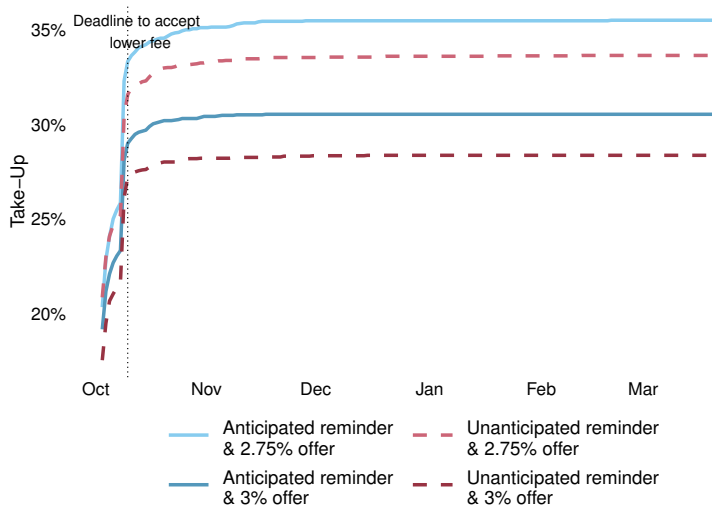
Effect of Anticipated Reminder by Offer Value | Opening Email



► Unconditional



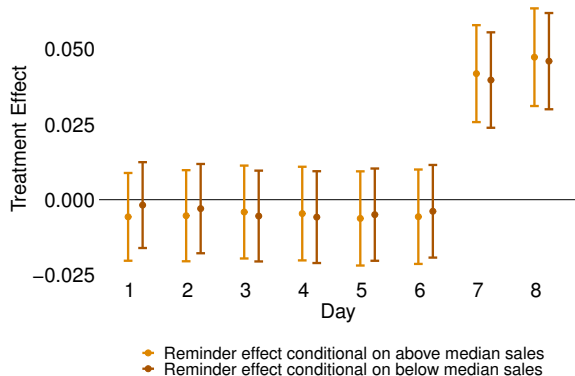
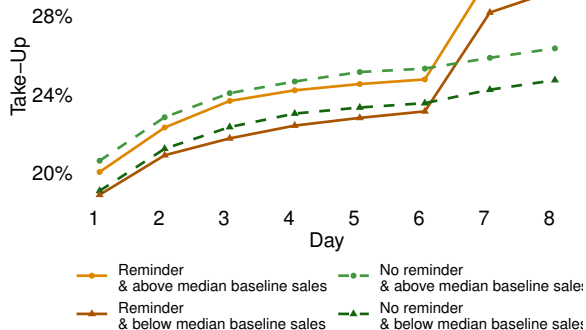
Six-Month Effect of Anticipated Reminder by Offer Value



► By deadline

Effect of Reminder by Baseline Sales

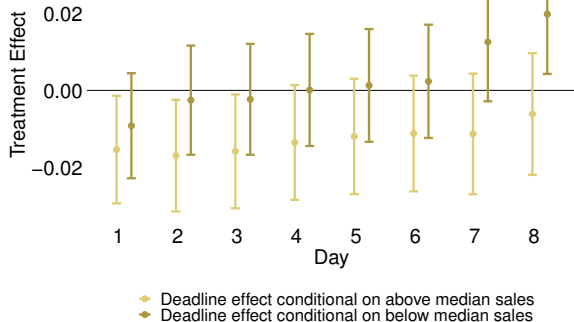
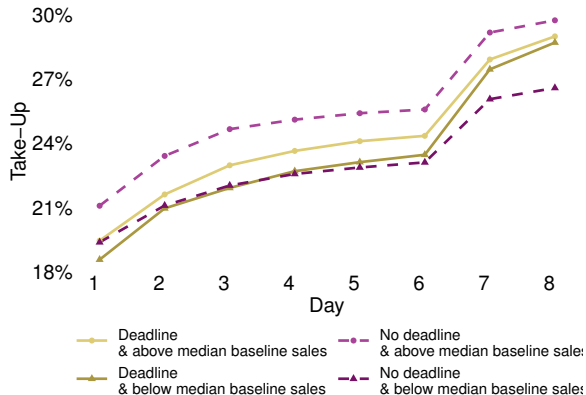
- Reminders ↗ take-up regardless of baseline sales



► Pooled across baseline sales

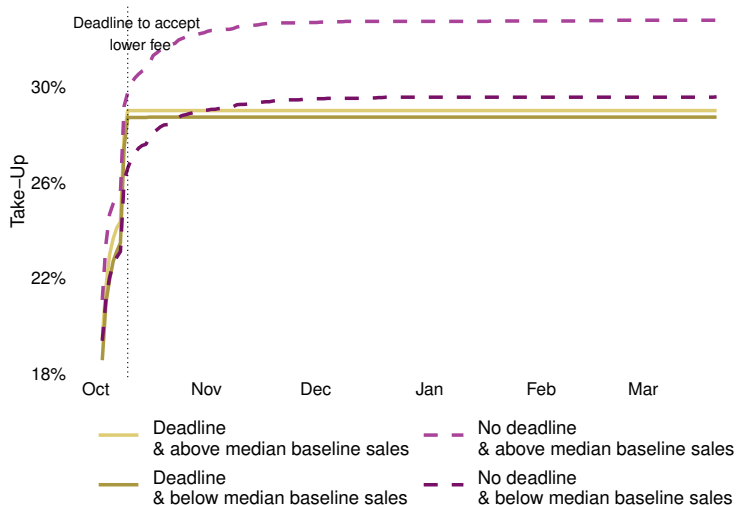
Effect of Deadline by Baseline Sales

- For below-median sales, deadline \nearrow take-up 2 pp by deadline
- For above-median sales, deadline has no effect



► Pooled across baseline sales

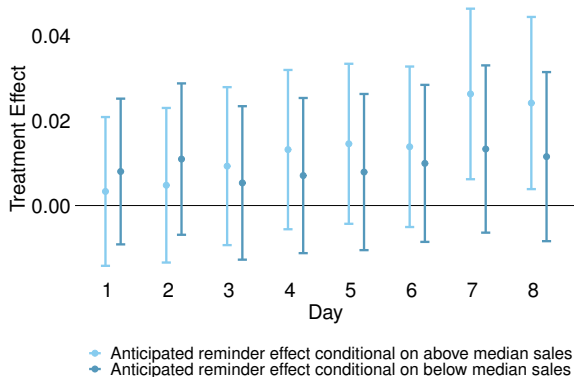
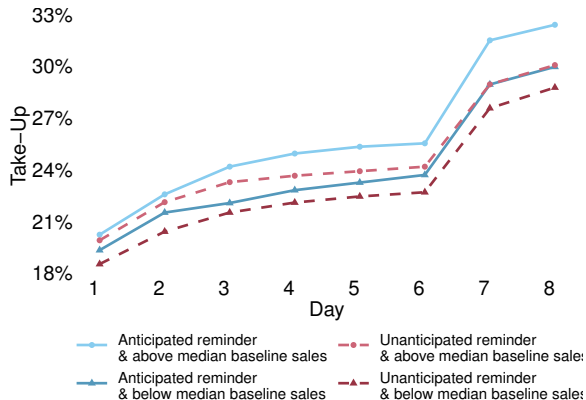
Six-Month Effect of Deadline by Baseline Sales



► Pooled across baseline sales

Effect of Anticipated Reminder by Baseline Sales

- Anticipated reminders appear to ↗ take-up regardless of baseline sales
 - Cannot reject that effect is the same regardless of baseline sales



► Pooled across baseline sales

Survey balance

$$y_i = \beta_0 + \beta_1 \mathbb{1}(\text{Ant. remind})_i + \beta_2 \mathbb{1}(\text{Unant. remind})_i + \beta_3 \mathbb{1}(\text{Deadline})_i + \beta_4 \mathbb{1}(\text{2.75\% Fee})_i + \varepsilon_i$$

	Intercept	Anticipated reminder	Unanticipated reminder	Deadline	2.75% Fee	F-stat p-value
<i>Owner characteristics</i>						
Owner sex female	0.400***	-0.079	-0.071	0.084*	0.122**	0.037
Owner age	41.23***	-1.40	-0.79	0.16	-0.70	0.887
<i>Business type</i>						
Beauty	0.158***	-0.096	-0.087	-0.034	0.018	0.115
Clothing	0.034	0.065*	0.062*	0.002	-0.022	0.626
Professionals	0.218***	0.027	0.058	-0.002	0.070	0.486
Restaurants	0.108**	0.031	0.043	0.001	-0.071**	0.182
Small retailers	0.344***	-0.142*	-0.108	0.017	0.047	0.299
Other	0.137*	0.115*	0.032	0.016	-0.042	0.130
<i>Pre-treatment sales variables</i>						
Months since first transaction	21.48***	0.61	2.92	1.92	-0.24	0.516
% months business made sales	0.854***	-0.035	-0.031	0.007	-0.014	0.841
Log average monthly sales volume	8.585***	0.104	0.159	-0.026	0.097	0.774
Log average monthly transactions	2.053***	-0.158	-0.041	0.135	-0.001	0.736

► Perception of offer's value

► Anticipated reminder compliers

► Unanticipated reminder compliers

► Deadline compliers

Survey response balance by characteristics

$$y_i = \beta_0 + \beta_1 \mathbb{1}(\text{Respond})_i + \varepsilon_i$$

	Did not respond	Responded	Difference	P-value
<i>Owner characteristics</i>				
Owner sex female	0.423	0.438	0.016	0.589
Owner age	39.83	39.94	0.11	0.867
<i>Business type</i>				
Beauty	0.085	0.068	-0.017	0.261
Clothing	0.085	0.082	-0.003	0.853
Professionals	0.258	0.291	0.034	0.197
Restaurants	0.116	0.105	-0.012	0.520
Small retailers	0.260	0.263	0.004	0.888
Other	0.197	0.191	-0.006	0.801
<i>Pre-treatment sales variables</i>				
Months since first transaction	25.16	23.89	-1.27	0.221
% months business made sales	0.817	0.820	0.003	0.824
Log average monthly sales volume	8.745	8.741	-0.004	0.944
Log average monthly transactions	2.015	2.029	0.014	0.866

Survey response balance by treatment arm

$$y_i = \beta_0 + \beta_1 \mathbb{1}(\text{Ant. remind})_i + \beta_2 \mathbb{1}(\text{Unant. remind})_i + \beta_3 \mathbb{1}(\text{Deadline})_i + \beta_4 \mathbb{1}(\text{2.75\% Fee})_i + \varepsilon_i$$

	Responded survey
Intercept	0.300*** (0.045)
Anticipated reminder	-0.005 (0.045)
Unanticipated reminder	-0.013 (0.045)
Deadline	0.002 (0.025)
2.75% fee	0.028 (0.025)
Num. Obs.	1399

► Perception of offer's value

► Anticipated reminder compliers

► Unanticipated reminder compliers

► Deadline compliers

Survey response correlated with take-up

$$\mathbb{1}(\textit{Respond})_i = \beta_0 + \beta_1 \mathbb{1}(\textit{Accept})_i + \varepsilon_i$$

	Responded survey
Intercept	0.251*** (0.000)
Firm accepted offer by deadline	0.125*** (0.000)
Num. Obs.	1399

► Perception of offer's value

► Anticipated reminder compliers

► Unanticipated reminder compliers

► Deadline compliers

Logins to Check Current Fee or Sales

- Administrative data on logins to partner's platform to check current fee or sales
- Compare anticipated and unanticipated reminder groups

	Log in	Viewed deposits
Intercept	0.095*** (0.003)	0.037*** (0.002)
Anticipated reminder	-0.003 (0.005)	0.000 (0.003)
Num. Obs.	16254	16254

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

► Perception of offer's value ► Anticipated reminder compliers ► Unanticipated reminder compliers ► Deadline compliers

Anticipated Reminder Effect Concentrated Among Less-Trusting

$$\mathbb{1}(\text{Adopt})_i = \beta_0 + \beta_1 \mathbb{1}(\text{Survey measure})_i + \beta_2 \mathbb{1}(\text{Ant. remind})_i \\ + \beta_3 \mathbb{1}(\text{Survey measure})_i \times \mathbb{1}(\text{Ant. remind})_i + \varepsilon_i$$

- Comparing anticipated to unanticipated reminder

Survey measure	Firm accepted offer by deadline					
	Trust (1)	Reciprocity (2)	Procrastination (3)	Memory (4)	Overconfidence (5)	Attention (6)
Intercept	0.243*** (0.036)	0.305*** (0.098)	0.316*** (0.038)	0.311*** (0.063)	0.289*** (0.041)	0.202*** (0.060)
Survey measure	0.177*** (0.068)	0.006 (0.103)	-0.019 (0.068)	-0.001 (0.073)	0.046 (0.064)	0.133* (0.070)
Anticipated reminder	0.123** (0.059)	0.031 (0.146)	0.052 (0.060)	0.028 (0.087)	0.088 (0.065)	0.111 (0.110)
Survey measure × Anticipated reminder	-0.269*** (0.096)	-0.012 (0.154)	-0.080 (0.096)	-0.012 (0.103)	-0.152 (0.093)	-0.114 (0.121)
Num. Obs.	389	389	389	389	389	389
Prop. survey measure = 1	0.301	0.897	0.348	0.626	0.386	0.787
Prop. firms took up treatment	0.300	0.300	0.300	0.300	0.300	0.300

► Graph

► Weighted

► Survey balance

► Survey response balance

► Logins

Unanticipated Reminder Effect Concentrated Among Low-Memory

$$\mathbb{1}(\text{Adopt})_i = \beta_0 + \beta_1 \mathbb{1}(\text{Survey measure})_i + \beta_2 \mathbb{1}(\text{Unant. remind})_i \\ + \beta_3 \mathbb{1}(\text{Survey measure})_i \times \mathbb{1}(\text{Unant. remind})_i + \varepsilon_i$$

- Comparing unanticipated reminder to no reminder

Survey measure	Firm accepted offer by deadline					
	Trust (1)	Reciprocity (2)	Procrastination (3)	Memory (4)	Overconfidence (5)	Attention (6)
Intercept	0.406*** (0.088)	0.600*** (0.221)	0.586*** (0.092)	0.278*** (0.107)	0.370*** (0.094)	0.273** (0.135)
Survey measure	0.344* (0.178)	-0.143 (0.237)	-0.404*** (0.149)	0.359** (0.148)	0.322** (0.160)	0.279* (0.164)
Unanticipated reminder	0.038 (0.100)	-0.074 (0.249)	-0.048 (0.102)	0.254* (0.129)	0.135 (0.106)	0.114 (0.162)
Survey measure × Unanticipated reminder	-0.138 (0.192)	0.149 (0.266)	0.384** (0.170)	-0.359** (0.171)	-0.264 (0.176)	-0.106 (0.191)
Num. Obs.	228	228	228	228	228	228
Prop. survey measure = 1	0.366	0.895	0.315	0.683	0.420	0.841
Prop. firms took up treatment	0.611	0.611	0.611	0.611	0.611	0.611

► Graph

► Weighted

► Survey balance

► Survey response balance

► Logins

Anticipated Reminder (Weighted)

$$\mathbb{1}(\text{Adopt})_i = \beta_0 + \beta_1 \mathbb{1}(\text{Survey measure})_i + \beta_2 \mathbb{1}(\text{Ant. remind})_i \\ + \beta_3 \mathbb{1}(\text{Survey measure})_i \times \mathbb{1}(\text{Ant. remind})_i + \varepsilon_i$$

- Comparing anticipated to unanticipated reminder

Survey measure	Firm accepted offer by deadline					
	Trust (1)	Reciprocity (2)	Procrastination (3)	Memory (4)	Overconfidence (5)	Attention (6)
Intercept	0.243*** (0.036)	0.305*** (0.098)	0.316*** (0.038)	0.311*** (0.063)	0.289*** (0.041)	0.202*** (0.060)
Survey measure	0.177*** (0.068)	0.006 (0.103)	-0.019 (0.068)	-0.001 (0.073)	0.046 (0.064)	0.133* (0.070)
Anticipated reminder	0.123** (0.059)	0.031 (0.146)	0.052 (0.060)	0.028 (0.087)	0.088 (0.065)	0.111 (0.110)
Survey measure × Anticipated reminder	-0.269*** (0.096)	-0.012 (0.154)	-0.080 (0.096)	-0.012 (0.103)	-0.152 (0.093)	-0.114 (0.121)
Num. Obs.	389	389	389	389	389	389
Prop. survey measure = 1	0.301	0.897	0.348	0.626	0.386	0.787
Prop. firms took up treatment	0.300	0.300	0.300	0.300	0.300	0.300

► Graph

► Unweighted

► Survey balance

► Survey response balance

► Logins

Unanticipated Reminder (Weighted)

$$\mathbb{1}(\text{Adopt})_i = \beta_0 + \beta_1 \mathbb{1}(\text{Survey measure})_i + \beta_2 \mathbb{1}(\text{Unant. remind})_i \\ + \beta_3 \mathbb{1}(\text{Survey measure})_i \times \mathbb{1}(\text{Unant. remind})_i + \varepsilon_i$$

- Comparing unanticipated reminder to no reminder

Survey measure	Firm accepted offer by deadline					
	Trust (1)	Reciprocity (2)	Procrastination (3)	Memory (4)	Overconfidence (5)	Attention (6)
Intercept	0.214*** (0.062)	0.437* (0.228)	0.377*** (0.091)	0.135** (0.063)	0.200*** (0.065)	0.135* (0.081)
Survey measure	0.333 (0.216)	-0.190 (0.237)	-0.299*** (0.107)	0.273** (0.126)	0.240 (0.165)	0.189 (0.116)
Unanticipated reminder	0.029 (0.072)	-0.132 (0.248)	-0.061 (0.098)	0.176** (0.089)	0.090 (0.077)	0.068 (0.101)
Survey measure × Unanticipated reminder	-0.157 (0.227)	0.196 (0.258)	0.281** (0.127)	-0.273* (0.146)	-0.194 (0.177)	-0.056 (0.136)
Num. Obs.	228	228	228	228	228	228
Prop. survey measure = 1	0.301	0.897	0.348	0.626	0.386	0.787
Prop. firms took up treatment	0.300	0.300	0.300	0.300	0.300	0.300

► Graph

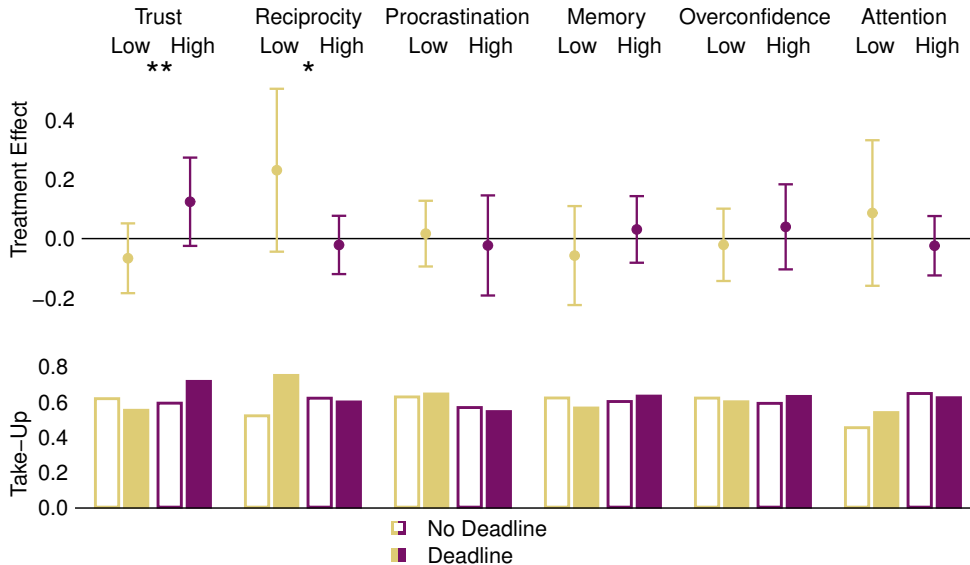
► Unweighted

► Survey balance

► Survey response balance

► Logins

Deadline Effect



Deadline Effect

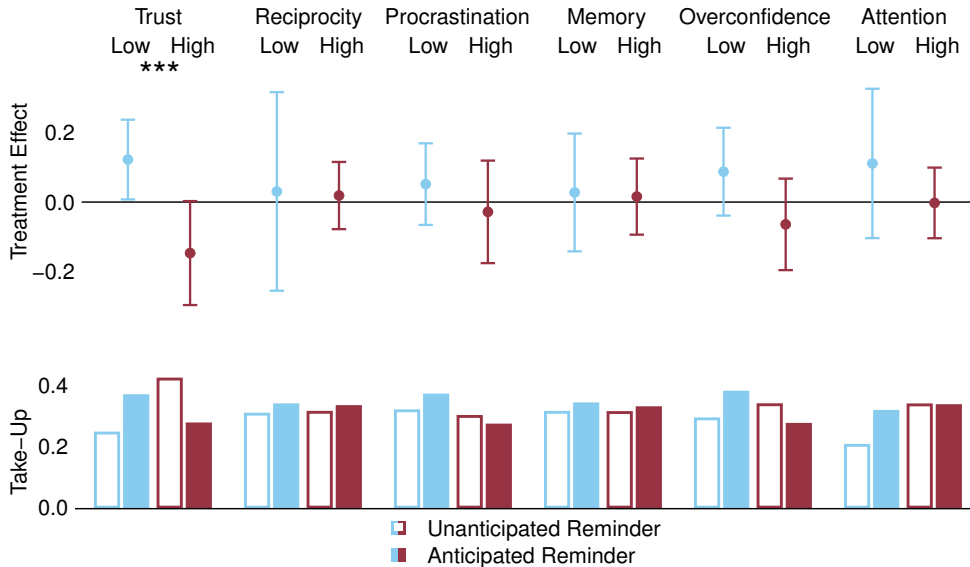
$$\mathbb{1}(\text{Adopt})_i = \beta_0 + \beta_1 \mathbb{1}(\text{Survey measure})_i + \beta_2 \mathbb{1}(\text{Deadline})_i + \beta_3 \mathbb{1}(\text{Survey measure})_i \times \mathbb{1}(\text{Deadline})_i + \varepsilon_i$$

- Comparing deadline to no deadline

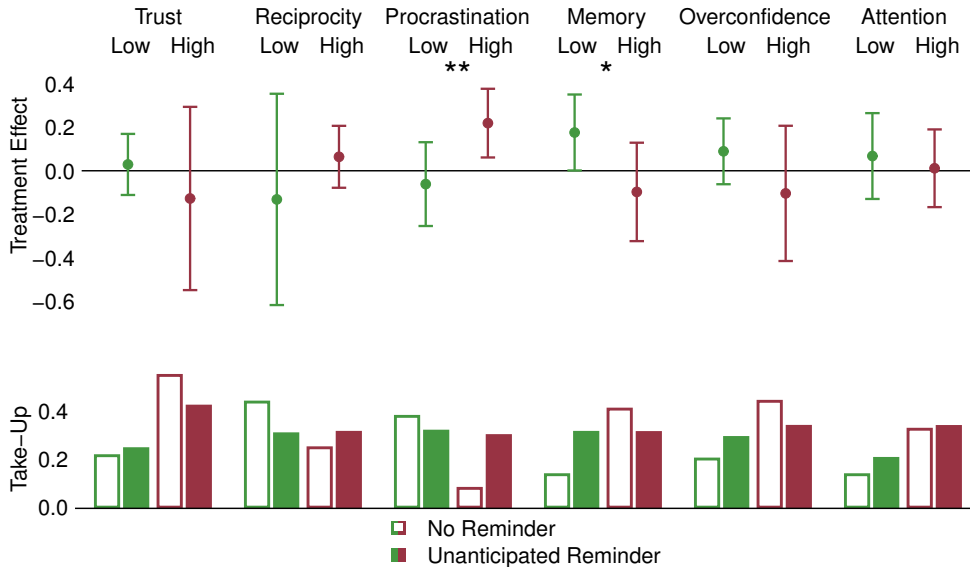
Survey measure	Firm accepted offer by deadline					
	Trust (1)	Reciprocity (2)	Procrastination (3)	Memory (4)	Overconfidence (5)	Attention (6)
Intercept	0.618*** (0.042)	0.520*** (0.100)	0.628*** (0.040)	0.622*** (0.057)	0.621*** (0.044)	0.452*** (0.077)
Survey measure	-0.026 (0.070)	0.100 (0.107)	-0.060 (0.073)	-0.020 (0.070)	-0.030 (0.068)	0.195** (0.085)
Deadline	-0.066 (0.060)	0.230 (0.140)	0.017 (0.056)	-0.057 (0.085)	-0.021 (0.062)	0.086 (0.125)
Survey measure × Deadline	0.190** (0.097)	-0.251* (0.148)	-0.040 (0.103)	0.088 (0.102)	0.060 (0.096)	-0.110 (0.135)
Num. Obs.	429	429	429	429	429	429
Prop. survey measure = 1	0.366	0.895	0.315	0.683	0.420	0.841
Prop. firms took up treatment	0.611	0.611	0.611	0.611	0.611	0.611

[▶ Graph](#)
[▶ Weighted](#)
[▶ Survey balance](#)
[▶ Survey response balance](#)
[▶ Logins](#)
[▶ Unanticipated reminder](#)

Anticipated Reminder (Weighted)



Unanticipated Reminder (Weighted)



► Table

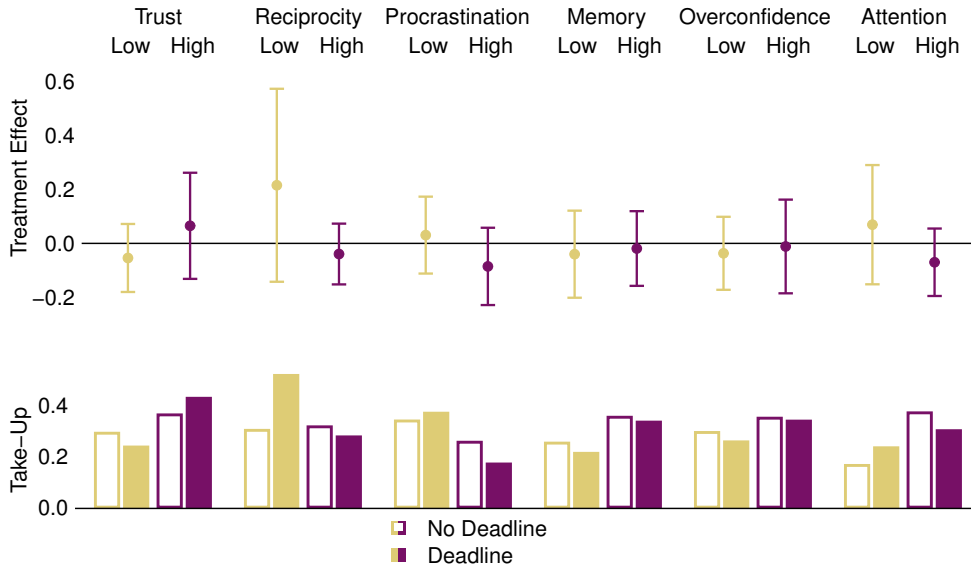
► Unweighted

► Survey balance

► Survey response balance

► Logins

Deadline (Weighted)



► Table

► Unweighted

► Survey balance

► Survey response balance

► Logins

Deadline Effect (Weighted)

$$\mathbb{1}(\text{Adopt})_i = \beta_0 + \beta_1 \mathbb{1}(\text{Survey measure})_i + \beta_2 \mathbb{1}(\text{Deadline})_i \\ + \beta_3 \mathbb{1}(\text{Survey measure})_i \times \mathbb{1}(\text{Deadline})_i + \varepsilon_i$$

- Comparing deadline to no deadline

Survey measure	Firm accepted offer by deadline					
	Trust (1)	Reciprocity (2)	Procrastination (3)	Memory (4)	Overconfidence (5)	Attention (6)
Intercept	0.289*** (0.048)	0.300*** (0.114)	0.337*** (0.051)	0.250*** (0.059)	0.292*** (0.050)	0.163*** (0.056)
Survey measure	0.072 (0.082)	0.014 (0.121)	-0.083 (0.077)	0.101 (0.078)	0.056 (0.079)	0.206*** (0.074)
Deadline	-0.054 (0.064)	0.215 (0.182)	0.031 (0.072)	-0.040 (0.082)	-0.037 (0.069)	0.069 (0.112)
Survey measure × Deadline	0.119 (0.119)	-0.254 (0.191)	-0.116 (0.103)	0.021 (0.108)	0.025 (0.112)	-0.139 (0.129)
Num. Obs.	429	429	429	429	429	429
Prop. survey measure = 1	0.301	0.897	0.348	0.626	0.386	0.787
Prop. firms took up treatment	0.300	0.300	0.300	0.300	0.300	0.300

[▶ Graph](#)
[▶ Unweighted](#)
[▶ Survey balance](#)
[▶ Survey response balance](#)
[▶ Logins](#)
[▶ Unanticipated reminder](#)

Elasticity of Usage of E-Payments

- Whether lowering merchant fee benefited FinTech partner depends on elasticity

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Elasticity of Usage of E-Payments

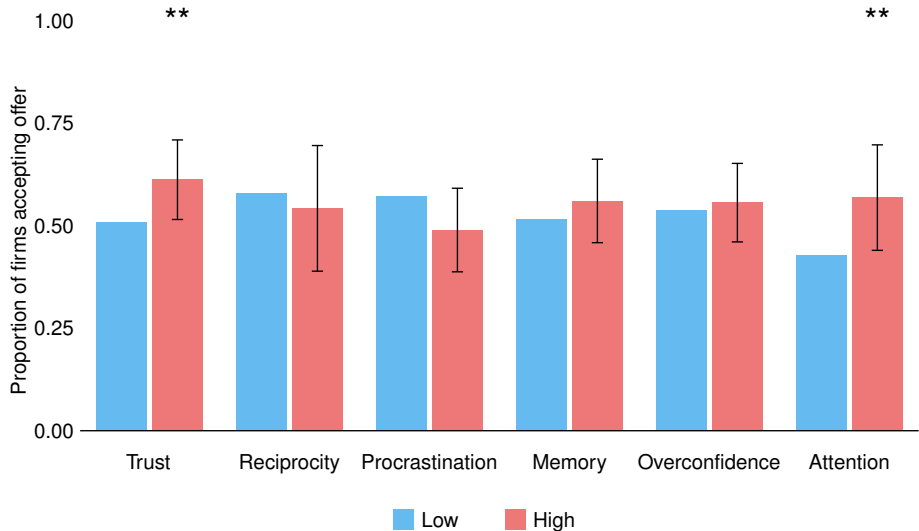
- Whether lowering merchant fee benefited FinTech partner depends on elasticity
- Treatment-on-the-treated estimate: taking up offer ↗ sales by $\sim 40\%$
- Sales Elasticity = $\frac{\% \Delta \text{Sales}}{\% \Delta \text{Fee}} \approx \frac{40\%}{-20\%} = -2$

Elasticity of Usage of E-Payments

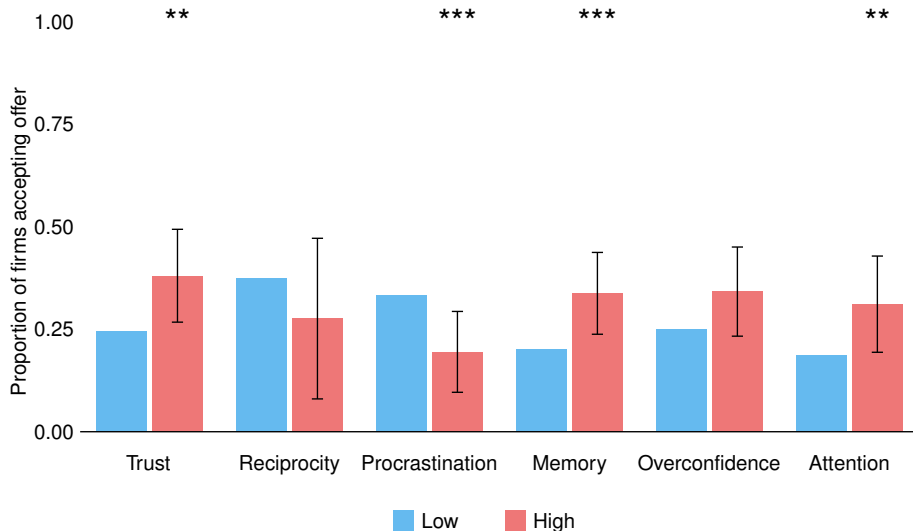
- Whether lowering merchant fee benefited FinTech partner depends on elasticity
- Treatment-on-the-treated estimate: taking up offer ↗ sales by $\sim 40\%$
- Sales Elasticity = $\frac{\% \Delta \text{Sales}}{\% \Delta \text{Fee}} \approx \frac{40\%}{-20\%} = -2$
- \Rightarrow profitable for FinTech partner to lower merchant fee

▶ [More details](#) ▶ [Mechanisms](#) ▶ [Conclusion](#)

Survey Measures and Take-Up



Survey Measures and Take-Up (Weighted)



► Anticipated reminder compliers

► Unanticipated reminder compliers

► Deadline compliers

Self-Reported Reasons for Not Adopting

