The Ostrich in Us: Selective Attention to Financial Accounts, Income, Spending, and Liquidity

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- Evidence for Ostrich effects and information avoidance: summarized in Golman et al. (2016)

Literature review

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- First-order determinants of paying attention to financial accounts: rational inattention or selective attention?

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  - Savings and cash holdings are positively correlated with attention

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  - Reduced fee payments (or consumption smoothing) are a benefit of paying attention

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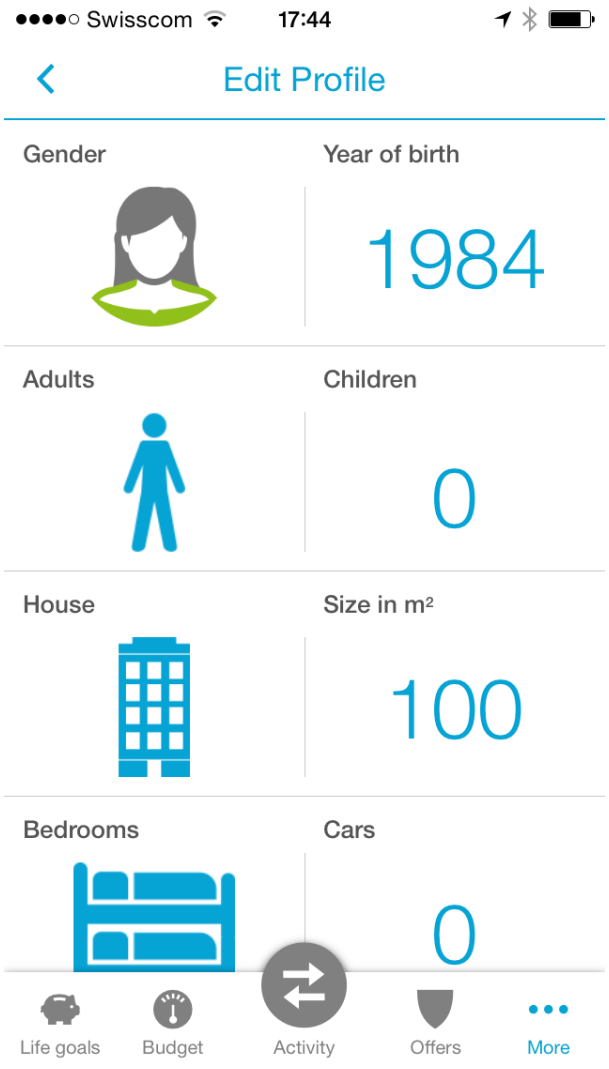
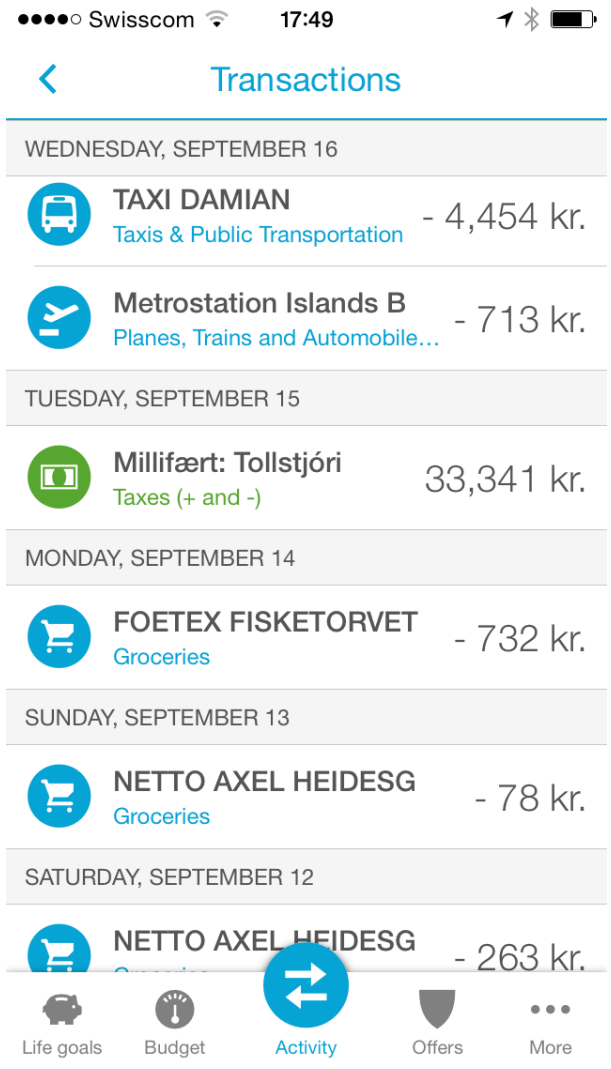
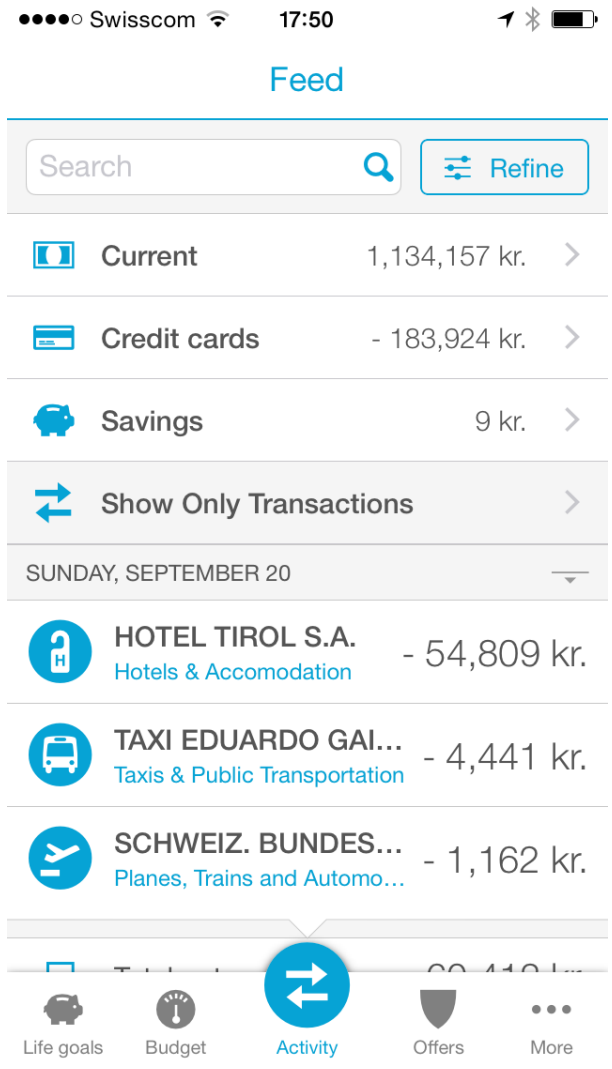
- The digitization of budgeting processes and attendance tracking of online behavior allow direct measurement of individual attention

The financial aggregation app: screenshots







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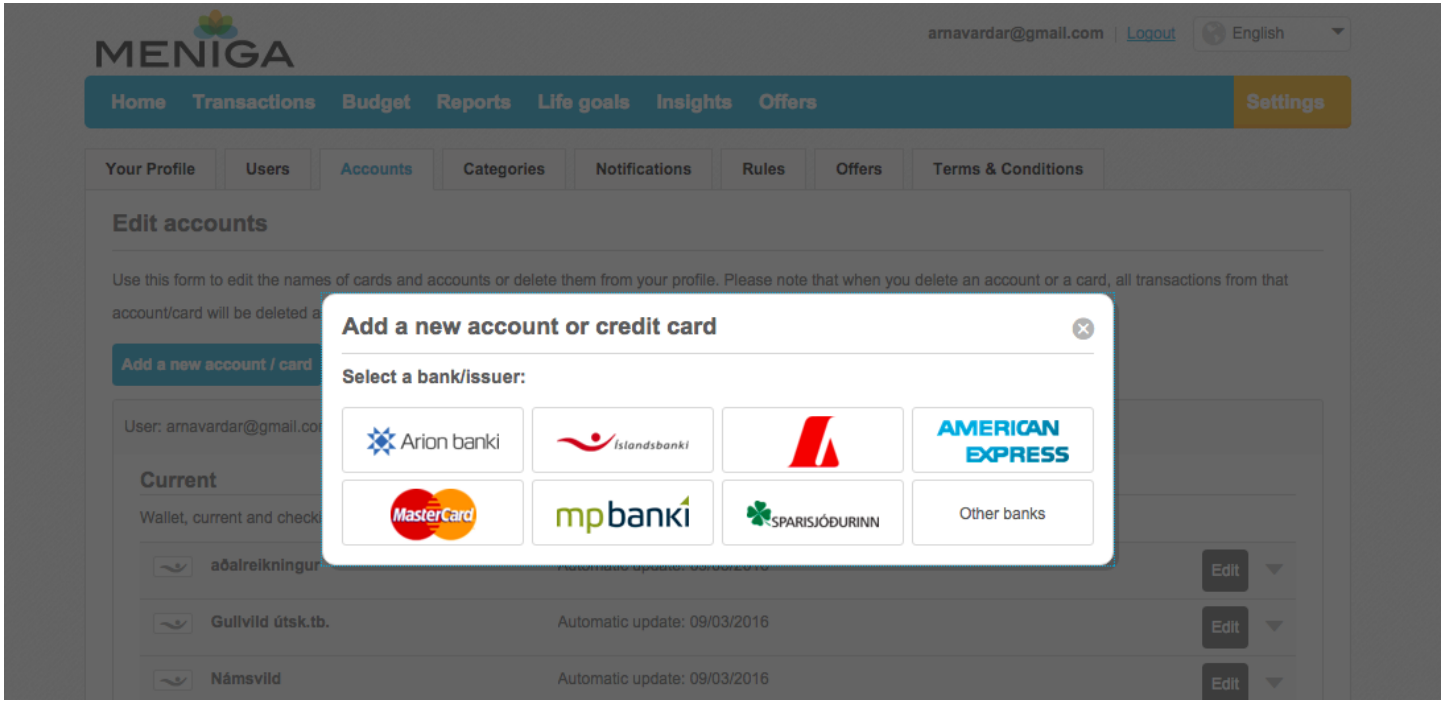

Summary statistics by terciles of logins and income

	Log in terciles			Income terciles		
Propensity to log in	0.1%	0.4%	6.1%	1.2%	2.3%	3.1%
Monthly income	3,217	3,543	3,939	448	2,995	7,240
Monthly regular income	3,099	3,426	3,822	428	2,933	6,969
Monthly irregular income	92	90	92	20	60	193
Monthly financial fees	-24	-23	-19	-14	-22	-30
Current account balance	1,991	2,060	1,877	1,590	1,378	2,837
Savings account balance	2,527	3,220	4,979	2,428	2,924	4,939
Overdraft	-1,740	-1,712	-1,557	-1,453	-1,453	-2,046
Credit card balance	-1,204	-1,313	-1,748	-1,041	-1,099	-1,989
Overdraft limit	2,446	2,534	2,546	1,993	2,067	3,311
Credit card limit	3,501	4,080	5,891	3,178	3,304	6,492
Liquidity	9,261	10,582	13,545	8,146	8,575	15,591
Monthly discretionary spending	1,384	1,478	1,578	923	1,432	2,080
Age	42	42	41	37	42	45
Female	52%	48%	43%	51%	54%	38%
Spouse	19%	24%	40%	25%	28%	30%

Looking at payday effects on attention

We run the following regression:

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- *fixed effects*: individual, day-of-week, day-of-month, year-month, and holidays

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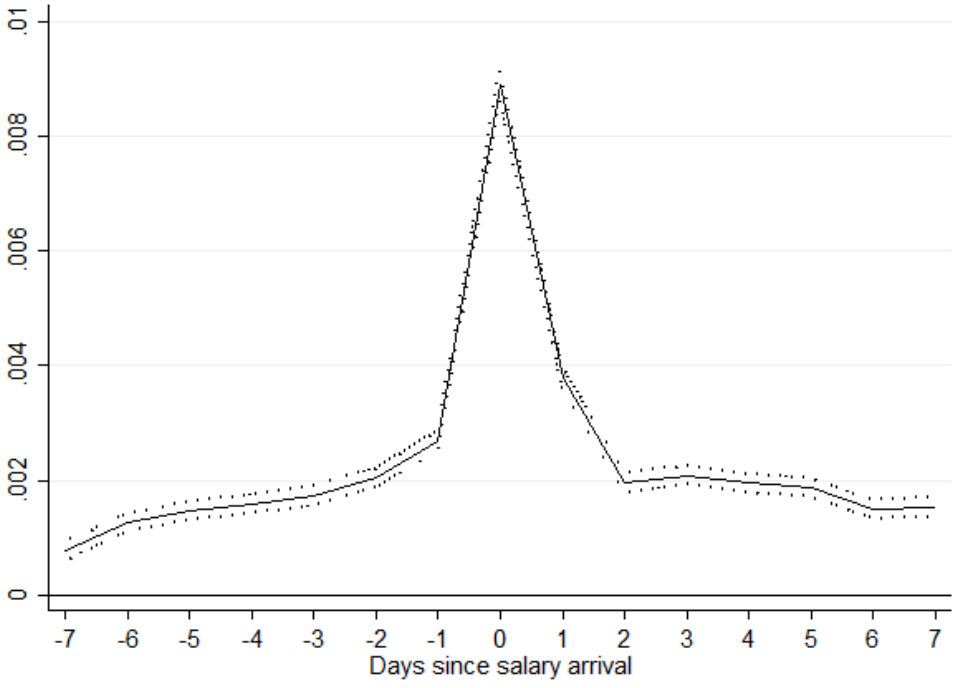

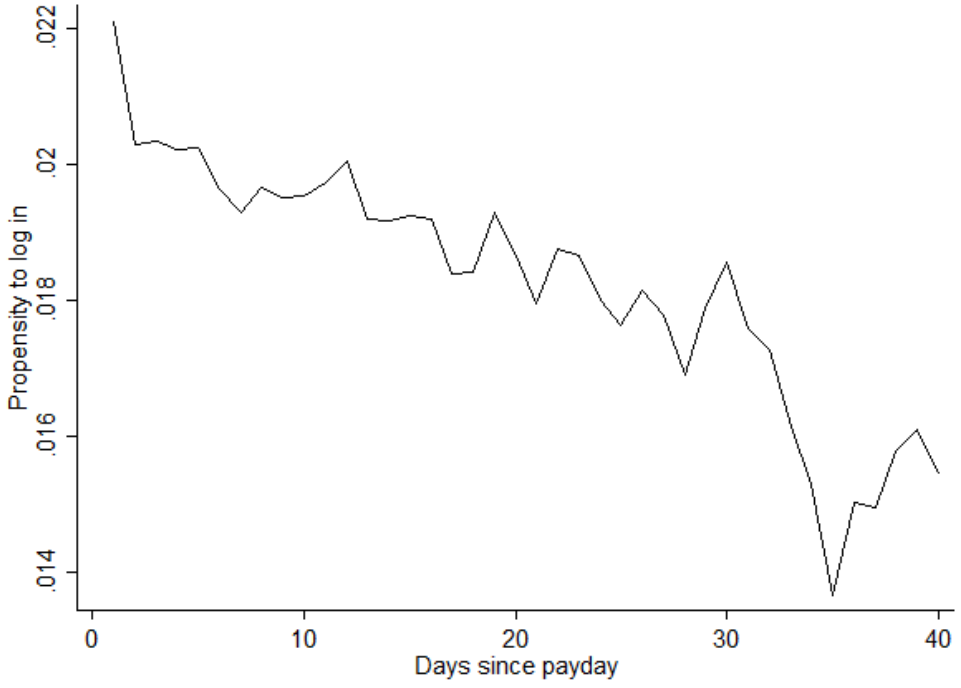

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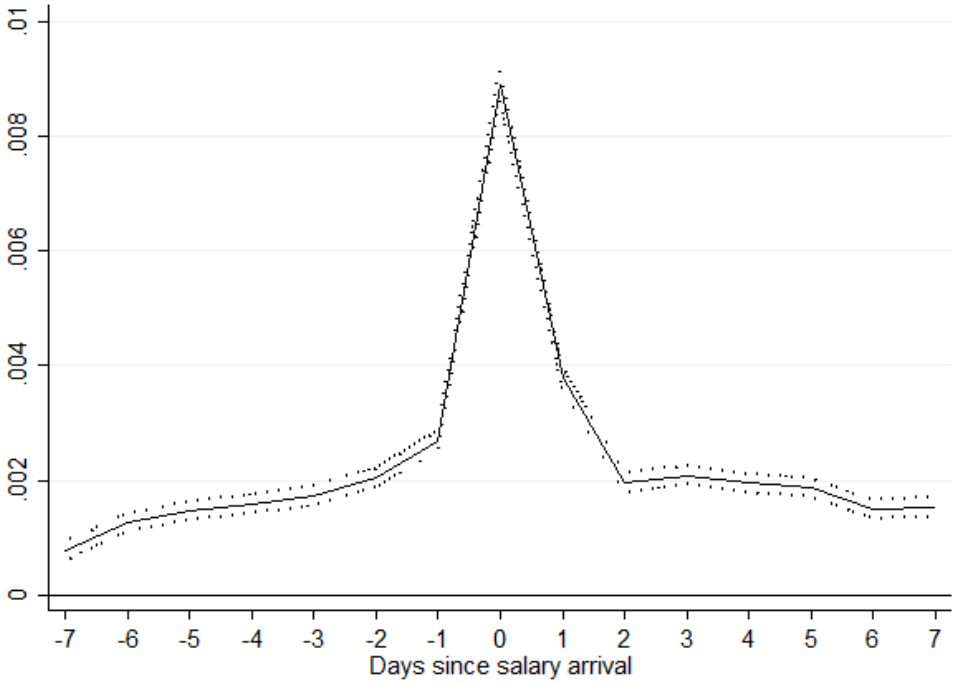

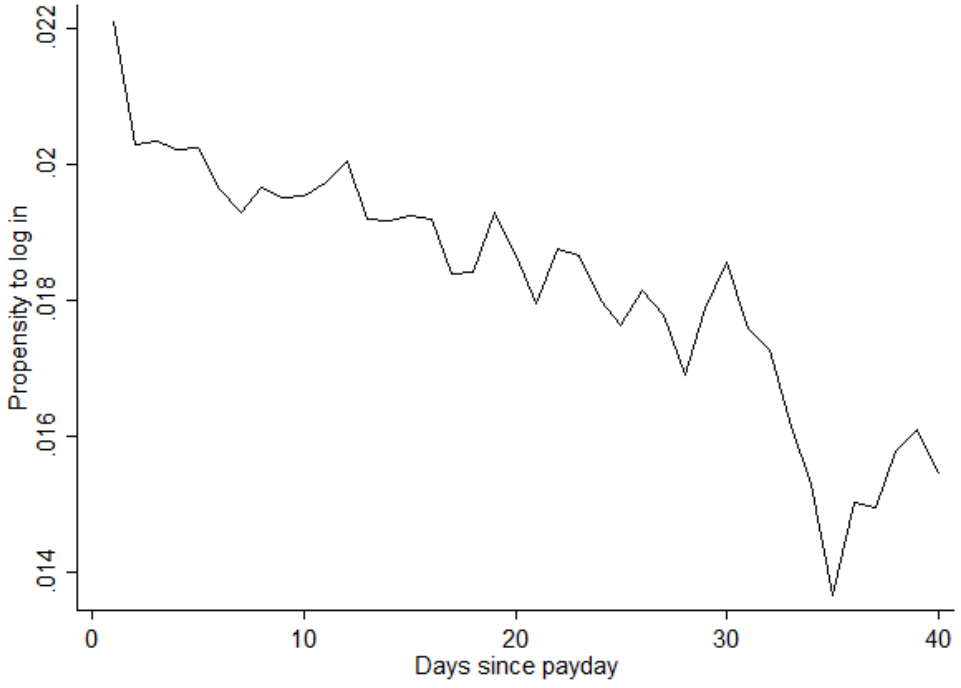

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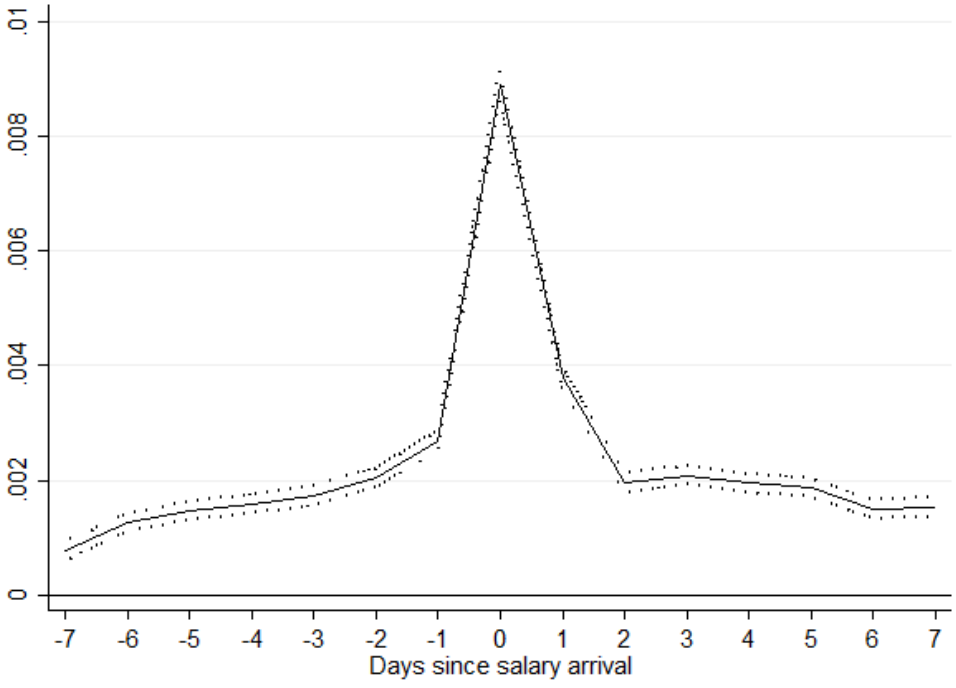

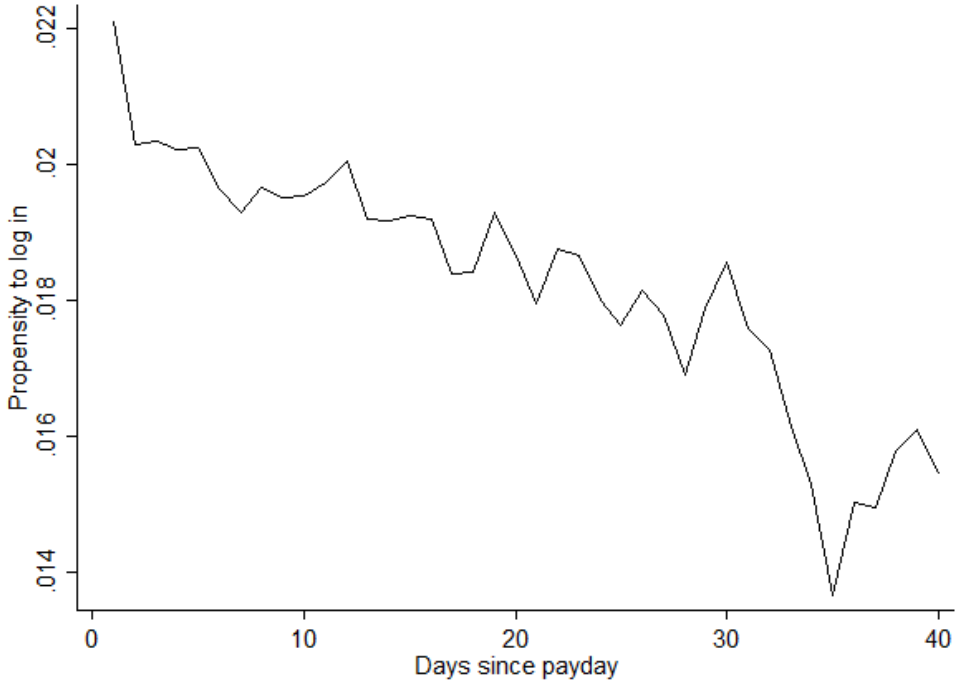

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- Logins decrease over the monthly pay (not monthly calendar) cycle

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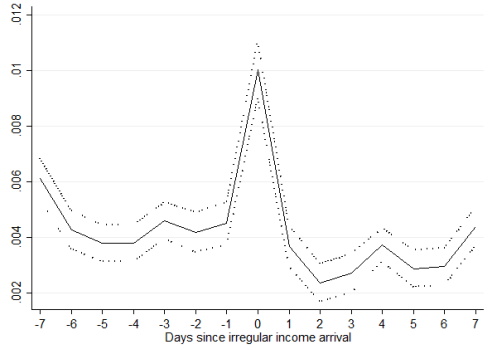

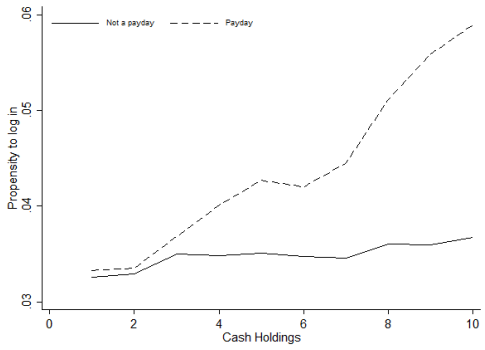

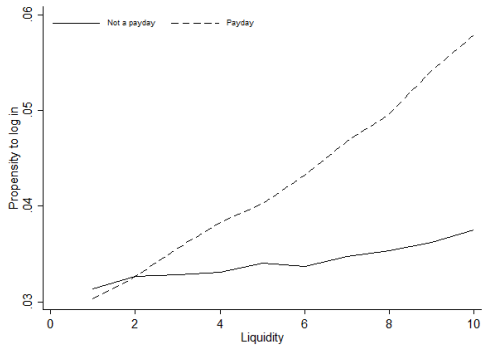

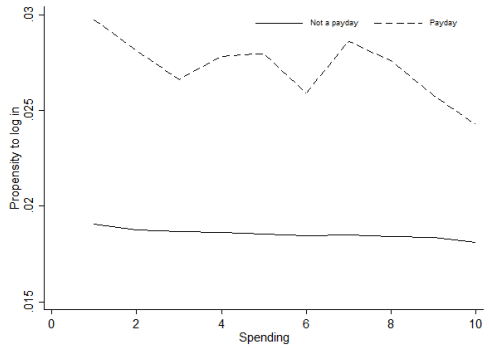

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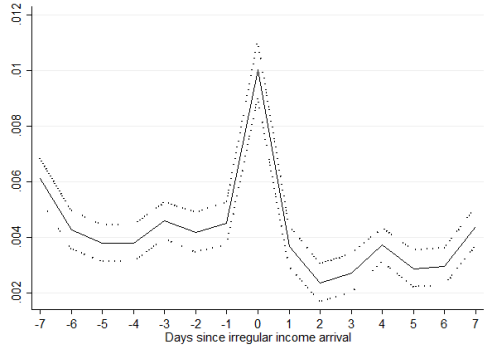

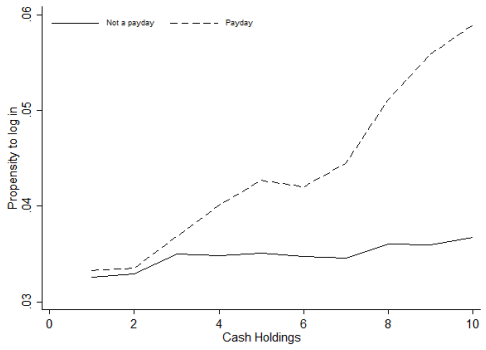

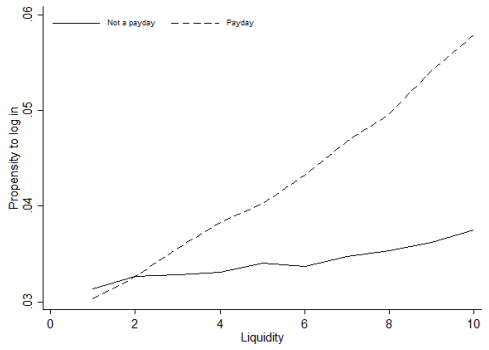

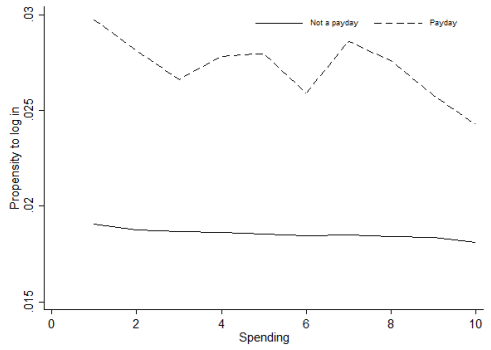

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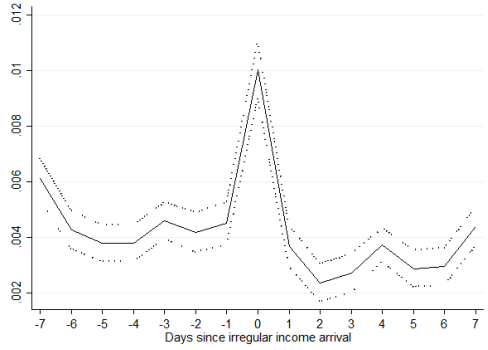

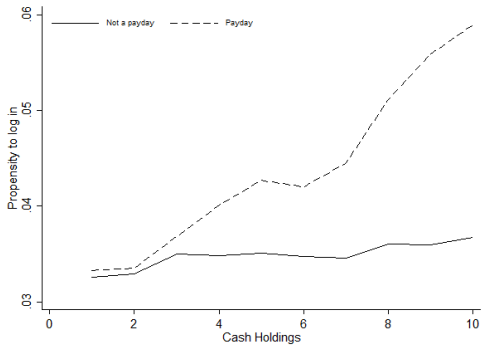

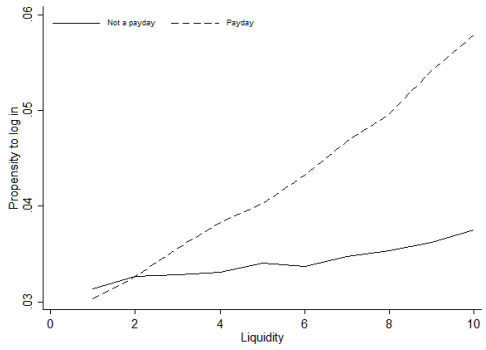

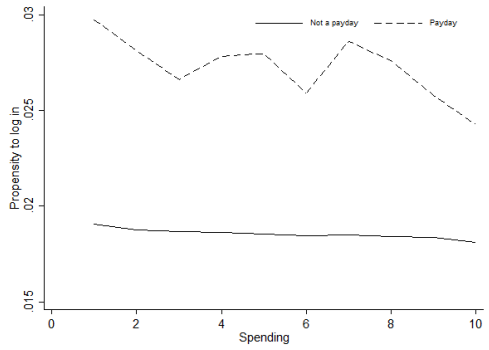

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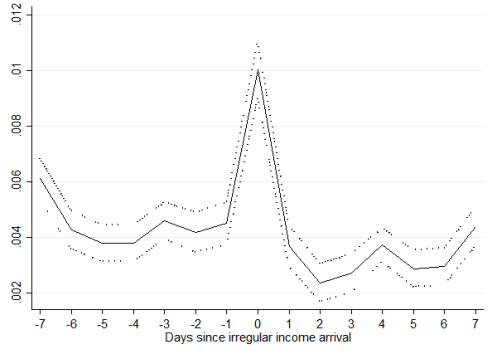

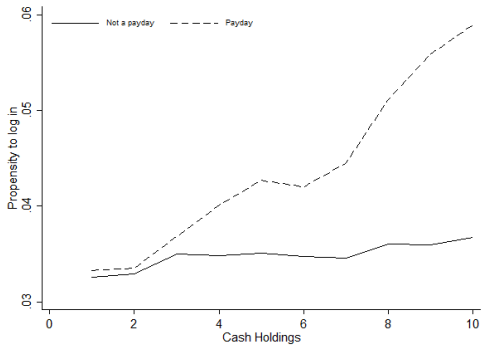

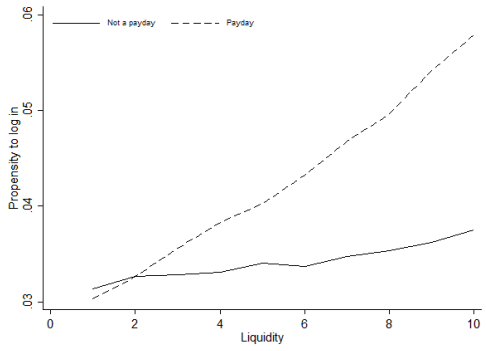

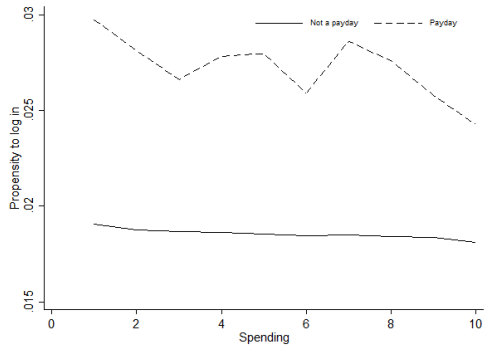

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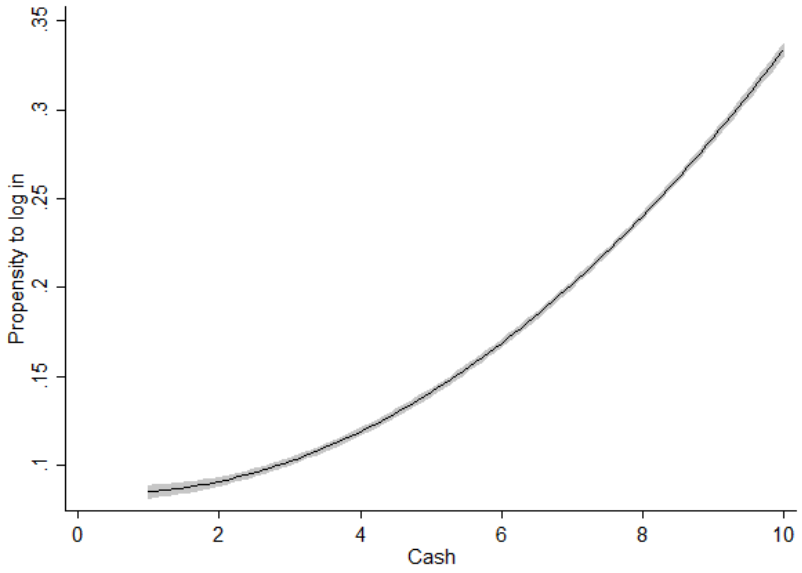
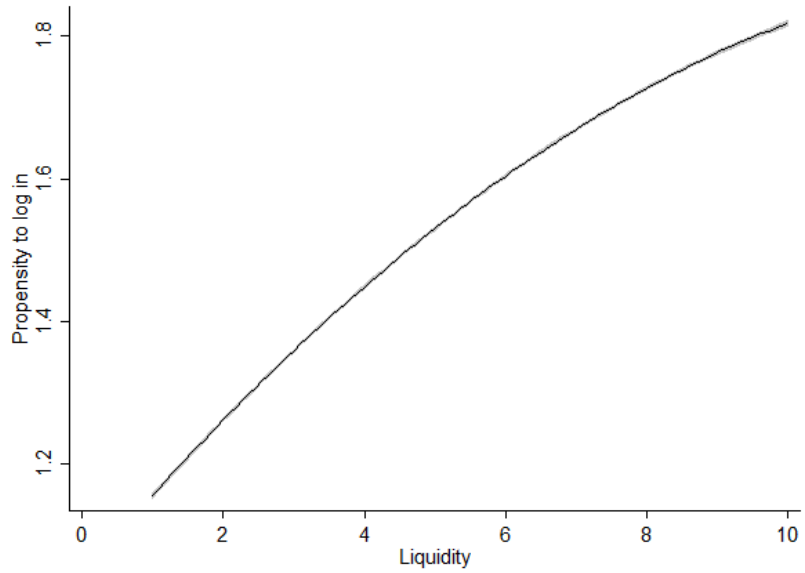
- Opportunity costs? There is no relationship between spending and paying attention on paydays

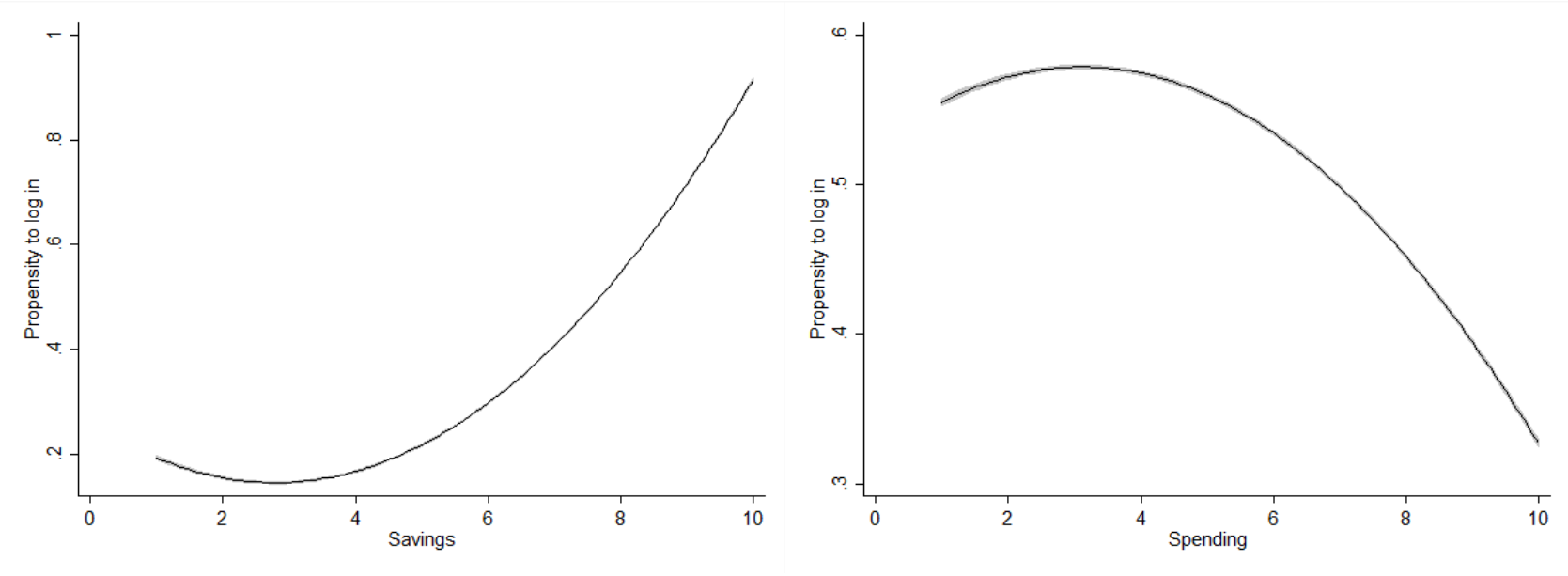
How does individual attention vary with cash holdings and liquidity?





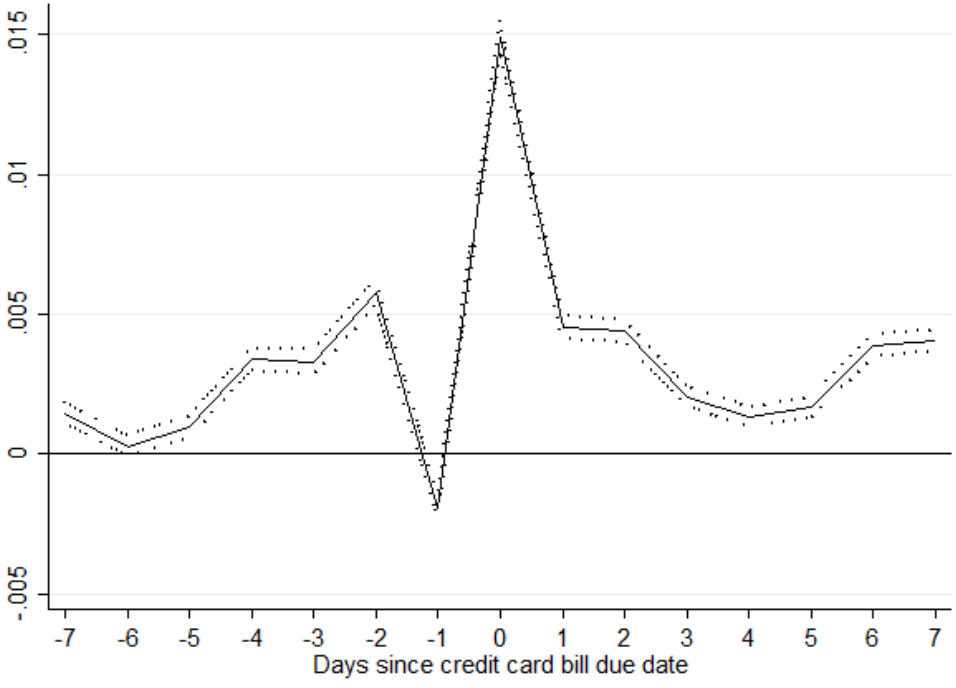
- Budgeting and planning? Individual cash and liquidity are positively correlated with paying attention
- We look at holdings relative to individual's own histories controlling for individual, day-of-week, month-by-year, and holiday fixed effects (no self selection on time-invariant (un)observables)

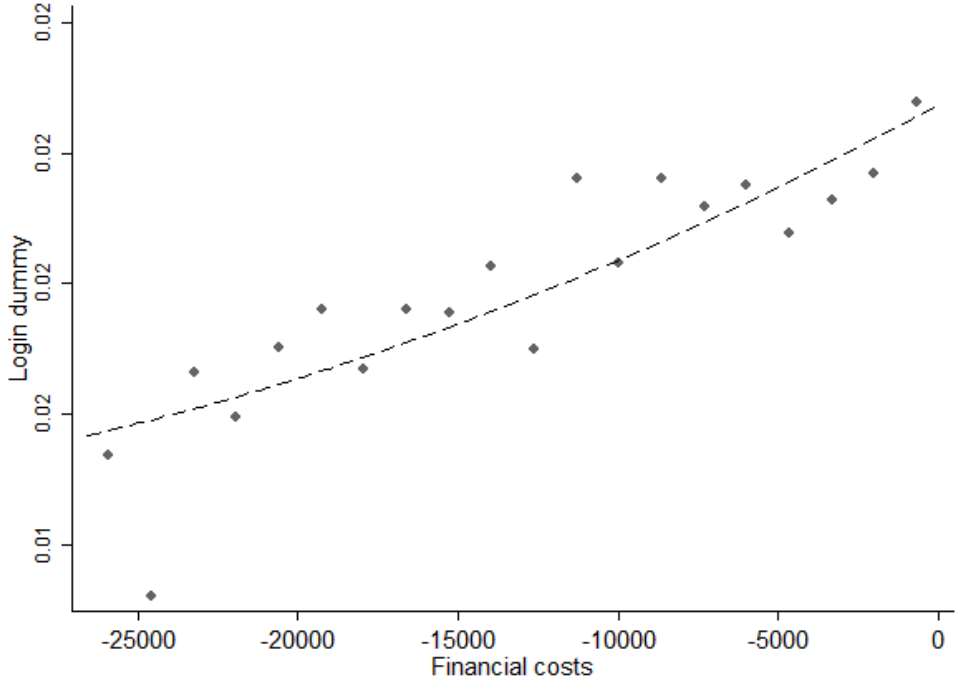
How does individual attention vary with saving and spending?



- Savings are positively correlated with logins
- Individuals log in less frequently when they spend a lot
  - Opportunity costs explanation? There is no (or a positive) relationship between logging in after spending (or cash holdings)

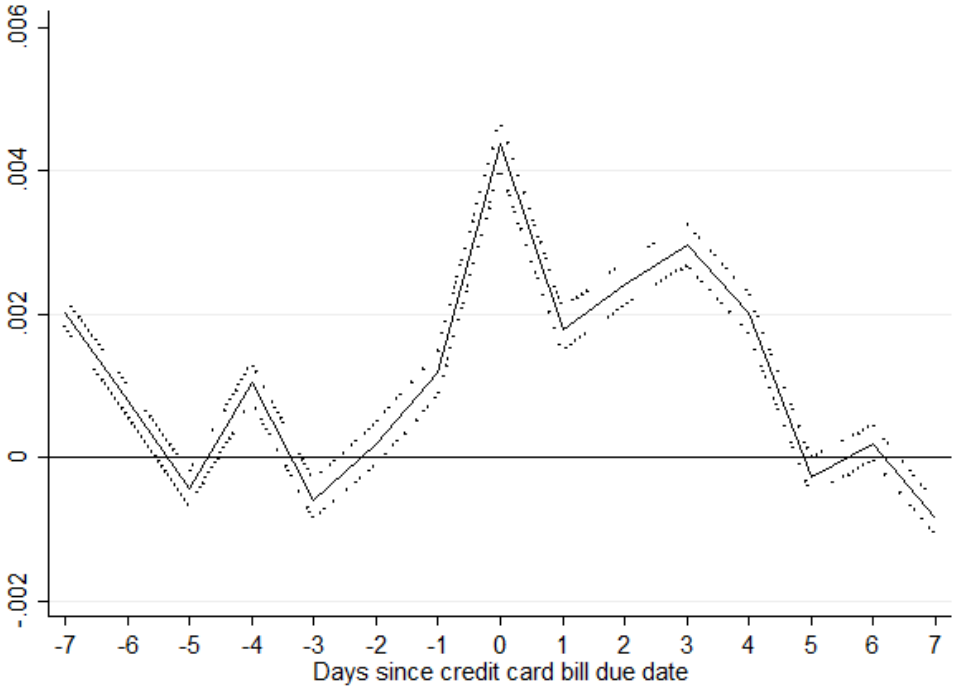
Looking at payment effects on attention

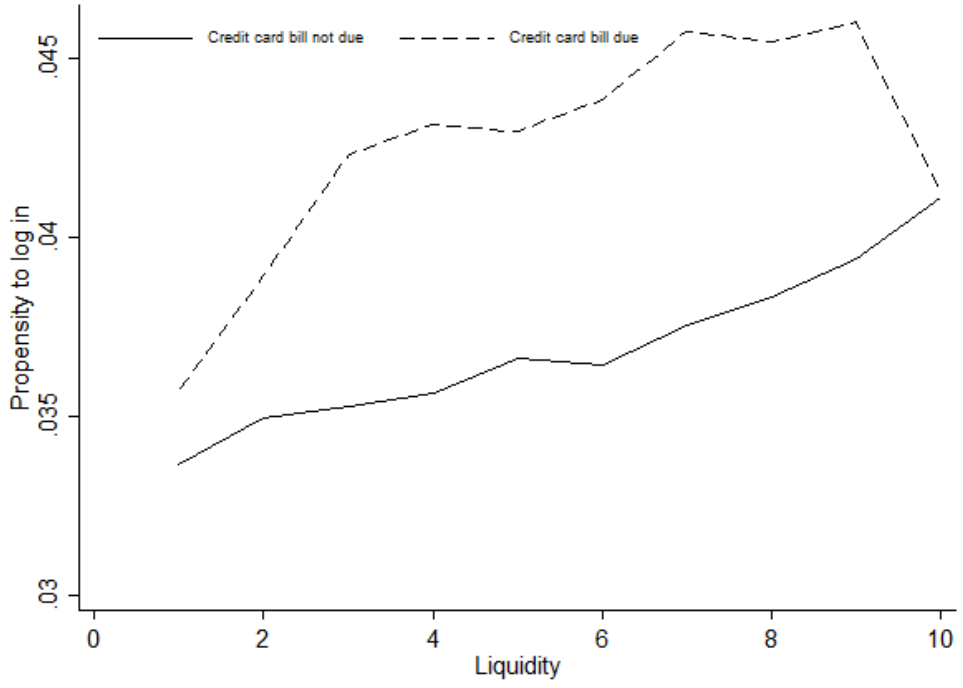




- Individuals pay attention when they set up a credit-card payment
- Endogenous, controlling for individual, day-of-week, day-of-month, month-by-year, and holiday fixed effects

Looking at payment effects on attention

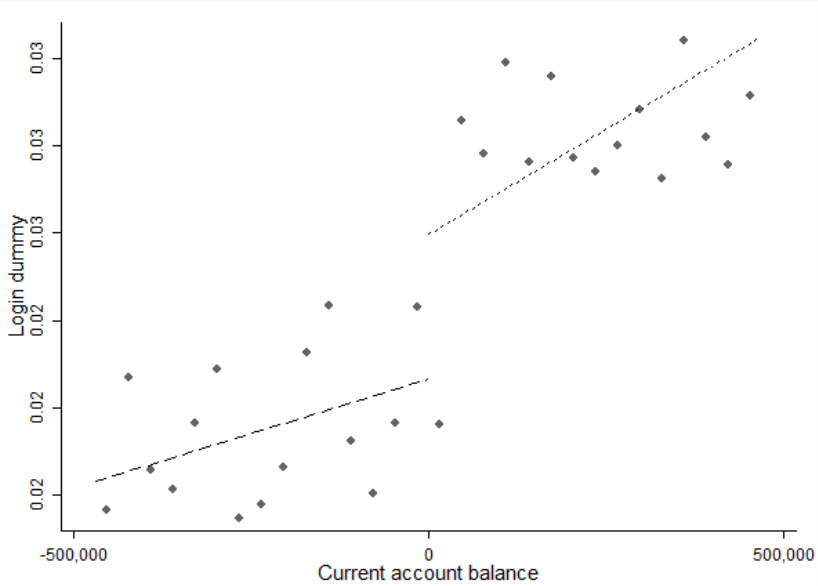


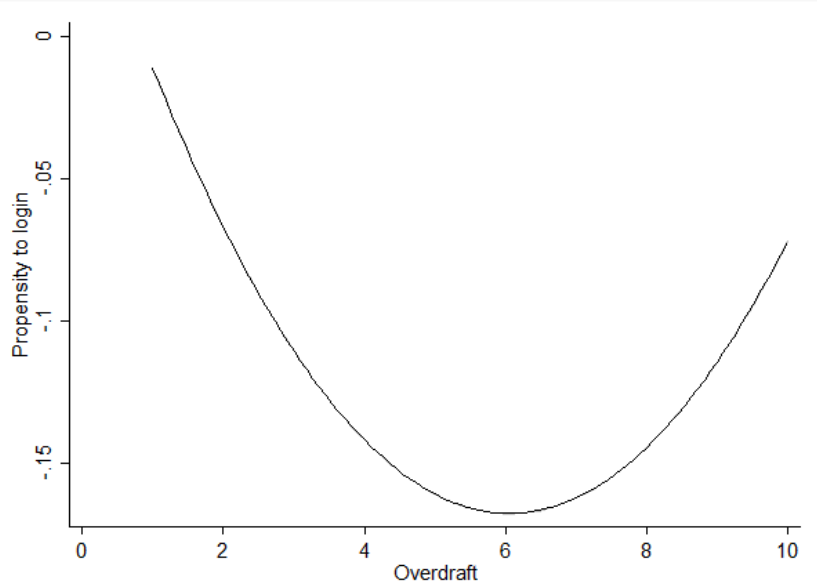


The effects of exogenous credit-card due dates on logins

- We only use bank-imposed automatic-payment dates (exogenous variation in the due date via Saturdays, Sundays, and holidays) and control for income payments
- Budgeting and planning? Paying attention on credit-card due dates depends negatively on liquidity

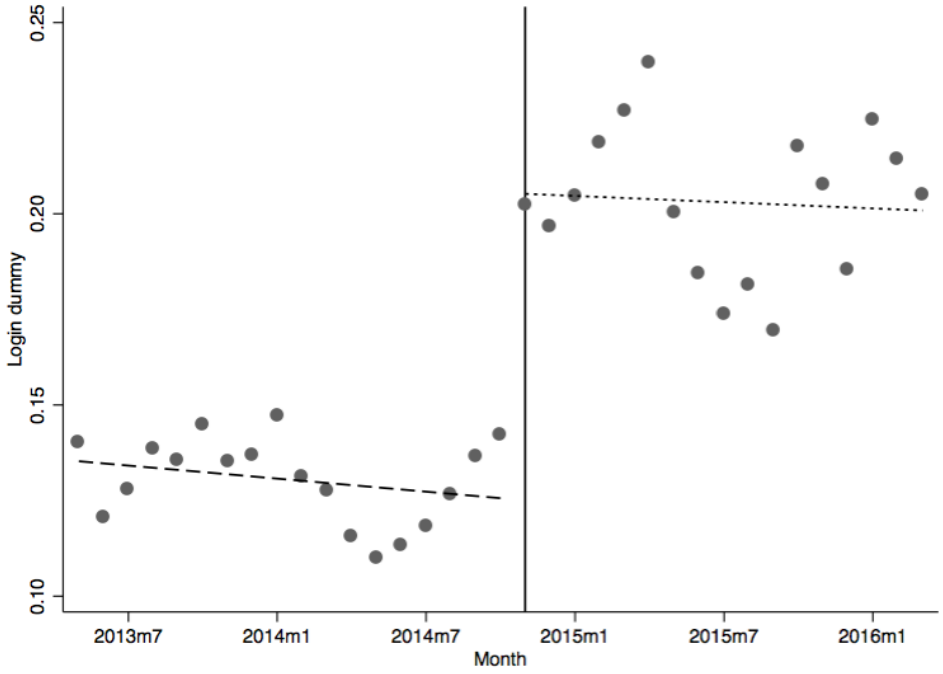
How does individual attention vary with overdrafts and current account balances?

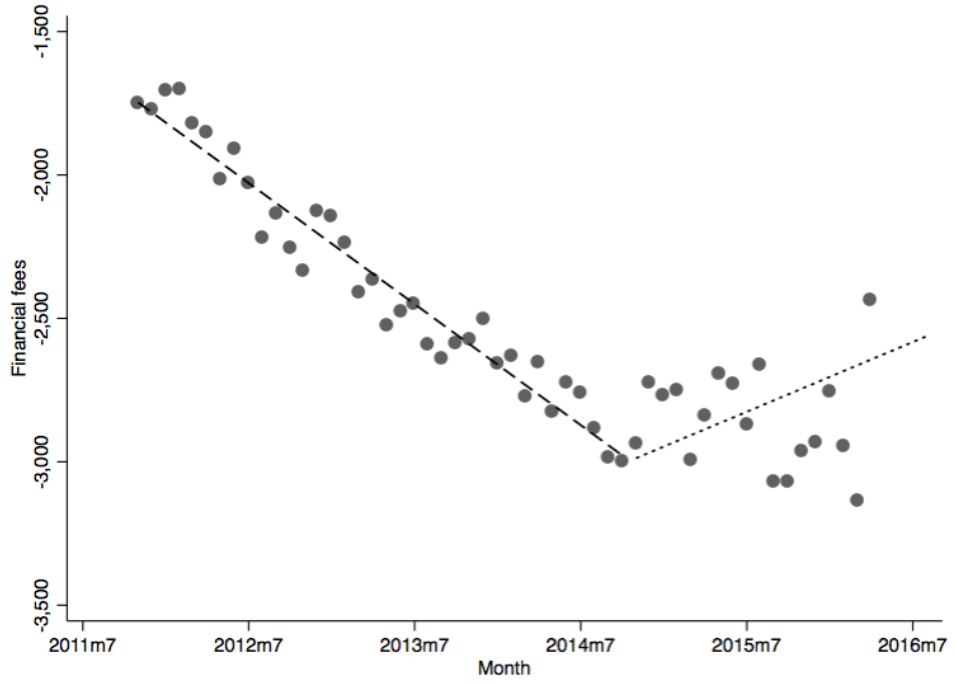




- Budgeting and planning? Individuals log in more often when they have positive balances and least often for intermediate amounts of overdrafts
- Regression coefficient of a positive balance on logins: 8.1% relative increase controlling for individual fixed effects, day-of-week, month-by-year, and holiday fixed effects as well as income payments

Causal effect of attention: empirical strategy





- Carlin, Olafsson, and Pagel (2016) find that the smartphone app introduction caused a substantial increase in logins and a trend reversal in financial fee and penalty payments

Causal effect of attention: results

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Each extra log in was associated with 242.7 Krona fewer penalties incurred, robust to individual fixed effects

	(1) First Stage	(2) ITT	(3) IV
Total Logins	0.7581***	183.9***	242.7***
	(0.0713)	(45.05)	(74.80)
$I(Logins_{it} > 0)$	0.0835***	183.9***	2,204.2***
	(0.0028)	(45.05)	(573.43)
$\#Obs.$	789,051	789,051	789,051
$\#Individuals$	13,843	13,843	13,843

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$$max\{\gamma\beta \int \nu(u(c) - u(\tilde{c}))dF(\tilde{c})I(a) + \beta u(c)]\}$$

$$\text{with } c = \tilde{y} - \tilde{b} - fI(\tilde{y} - \tilde{b} > 0)(1 - I(a))$$

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he will pay attention if

$$E[\gamma\beta\eta(\lambda - 1)\int_{\tilde{s}}^{\infty}(u(\mu + \sigma\tilde{s}) - u(\mu + \sigma\tilde{S}))dF(\tilde{S})] + E[\beta u(\mu + \sigma\tilde{s})]$$

$$> E[\beta u(\mu + \sigma\tilde{s} - fI(\mu + \sigma\tilde{s} > 0))]$$

Inattention and cash cushions for small risks

For any concave $u(\cdot)$, formalizing the intuition in terms of the risk premium for paying attention in the presence of small risks:

$$\frac{\partial \pi}{\partial \sigma}|_{\sigma \to 0} = -E[\gamma \beta \eta (\lambda - 1) \underbrace{u'(\mu)}_{\downarrow \text{ if } \mu \uparrow} \int_{\tilde{s}}^{\infty} \underbrace{(\tilde{s} - \tilde{S})}_{<0} dF(\tilde{S})] - \underbrace{E[\beta \tilde{s} u'(\mu)]}_{=0} > 0$$

Proposition

For the standard or hyperbolic-discounting agent ($\eta = 0$ or $\eta > 0$ and $\lambda = 1$), the risk premium for paying attention in the presence of small risks is zero (the agents are second-order risk averse). In contrast, for the news-utility agent ($\eta > 0$ and $\lambda > 1$), the risk premium for paying attention is positive. Additionally, the risk premium for paying attention is decreasing in expected cash holdings μ if $u(\cdot)$ is concave.

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- Fraction Δ of consumption utility the agent would be willing to give up to avoid news disutility:

$$\Delta e^{\mu+\frac{1}{2}\sigma^2} = u^{-1}(E[\eta(\lambda-1)\int_{\tilde{s}}^{\infty}(u(e^{\mu+\sigma\tilde{s}})-u(e^{\mu+\sigma\tilde{S}}))dF(\tilde{S})])$$

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- Increased by 24% when cash goes from $\mu = \sigma$ to $\mu = -\sigma$

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  - First principles: we can learn something about how people think about cash management and spending

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