

"Just One More Clip":

Short Videos, Big Self-Control Problems

Renjie Bao
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AMES-China
June 20, 2026

MOTIVATION

- A bellwether legal case: *K.G.M. v. Meta et al.* (March, 2026)
 - Found Meta and Google negligent in the design of products alleged to induce compulsive use
 - Central question: **welfare losses** vs. **high demand**

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 - Mechanism: small decision unit + rolling short-term temptation $\Rightarrow$ sustained overconsumption

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1. **Mechanism:** why short-form content worsens self-control?

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1. **Mechanism:** why short-form content worsens self-control?
2. **Quantification:** to what extent does this mechanism matter for short videos?

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1. **Mechanism:** why short-form content worsens self-control?
2. **Quantification:** to what extent does this mechanism matter for short videos?
3. **Policy:** how to regulate short video industry?

CONTRIBUTIONS

- **Self-control problems**

- Theory: Laibson (1997); O'Donoghue and Rabin (1999); Gruber and Köszegi (2001); Gul and Pesendorfer (2001, 2007)
- Application: gym memberships (DellaVigna and Malmendier, 2006), retirement saving decisions (e.g., Beshears, Choi, Laibson, Maxted, 2022; Laibson, Lee, Maxted, Repetto, and Tobacman, 2024)

↪ Contribution: identify and investigate the role of temptation duration

- **Digital Addiction**

- Mechanisms: Becker and Murphy (1988); Allcott, Gentzkow, and Song (2022)
- Consequences: Vanman, Baker, and Tobin (2018); Allcott, Braghieri, Eichmeyer, and Gentzkow (2020); Braghieri, Levy, and Makarin (2022); Collis and Eggers (2022)

↪ Contribution: examine welfare implications in short video setting

Stylized Model

MODEL SETUP

- **Context:** A platform offers a large number (T) of **one-minute short videos**

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- **Intrinsic value x :** *true* utility per minute
 - **Temptation (κ, χ) :** bias pull toward immediate entertainment
 - * **Temptation κ :** magnitude of bias per minute
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- ↪ Interpretations: present bias, habituation, etc ▶ $\beta \cdot \delta$
- **Additional assumptions:**
 - **Naïveté:** Users are unaware that their preferences will change over time
 - **Decision unit:** Users decide whether to continue at each video

SELF-CONTROL PROBLEMS

Table: Example: $x \in (-\kappa, 0)$ and $\chi = 2$

		Current video t			
		1	2	3	4
Perceived video τ	1	$x + \kappa$			
	2	$x + \kappa$			
	3	x			
	4	x			
	5	x			
	6	x			

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	4	x	x		
	5	x	x		
	6	x	x		

SELF-CONTROL PROBLEMS

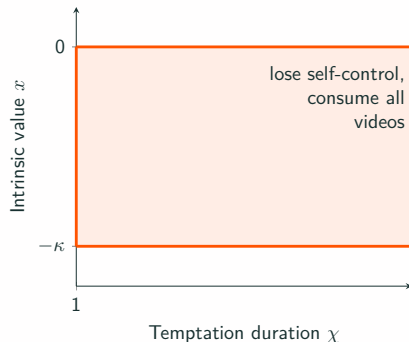
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Proposition (Self-control problems)

Users with $x \in (-\kappa, 0)$ and $\chi \geq 1$ watch more videos than they initially prefer.

SHORT VIDEOS AMPLIFY SELF-CONTROL PROBLEMS

- Comparative statics in video length n

- Perceived flow utility is:

$$\tilde{u}_t^t = nx + \min\{n, \chi\}\kappa$$

- Longer content attenuates perceived utility
 - * If $n \leq \chi$: entire n -minute video is tempting
 - * If $n \geq \chi$: temptation applies to first χ minutes

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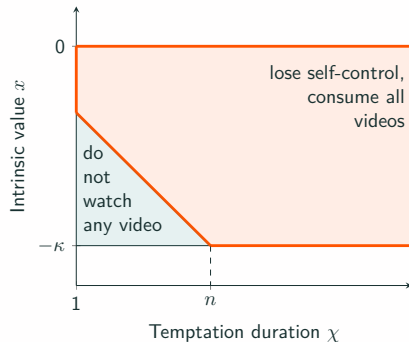
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- Falling into self-control trap iff $\tilde{u}_t^t > 0$, that is:

$$\max\left\{-\kappa, -\frac{\chi}{n}\kappa\right\} < x < 0$$



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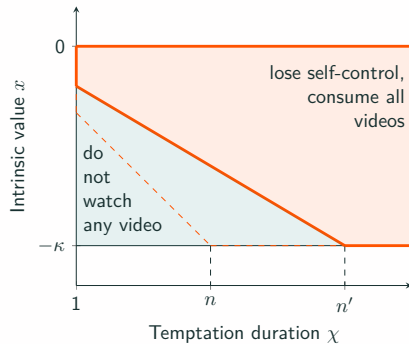
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Proposition (Shorter videos exacerbate self-control problems)

Shorter formats draw more users into the self-control trap, increasing surplus loss from temptation.

Context: Short Drama Series

SHORT-DRAMA PLATFORM

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 - Drama series: 40 to 100 episodes
 - Shortness: episodes last about one minute

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“high on drama, low on glam, and full of plot twists”
- The short-drama platform: leading in U.S. market
 - DAU: 100k by May, 2024
 - Users acquired via Facebook/TikTok ads



MOTIVATING FACT: SHORTER EPISODES PREDICT HIGHER COMPLETION

- Drama-level regression:

$$\text{CompletionRate}_d = \beta \text{EpisodeLength}_d + \mathbf{X}'_d \Gamma + \text{FE}_d + \varepsilon_d$$

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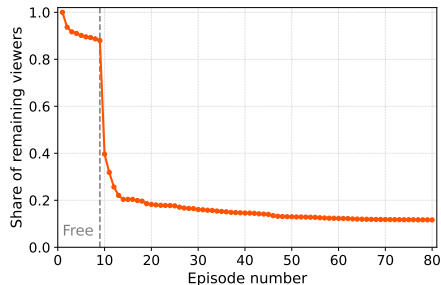
	Completion rate (%)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Episode length (minutes)	-2.18 (1.52)	-2.75** (1.14)	-3.22** (1.28)	-2.79** (1.25)	-2.58** (1.02)	-2.46*** (0.92)	-2.42*** (0.92)
Fixed effects							
Language		Yes	Yes	Yes	Yes	Yes	Yes
Genre			Yes	Yes	Yes	Yes	Yes
Release-month				Yes	Yes	Yes	Yes
Controls							
Episode count					Yes	Yes	Yes
First-episode viewers						Yes	Yes
Bitrate							Yes
Observations	353	353	353	353	353	353	353
Mean dep. var.	11.44	11.44	11.44	11.44	11.44	11.44	11.44
R^2	0.00	0.73	0.74	0.77	0.78	0.80	0.80

USER-LEVEL DATA ON THE SUPERSTAR DRAMA

- The superstar drama
 - Concentration: $\geq 60\%$ of viewership
 - Structure: 80 ep, each lasts 1 min

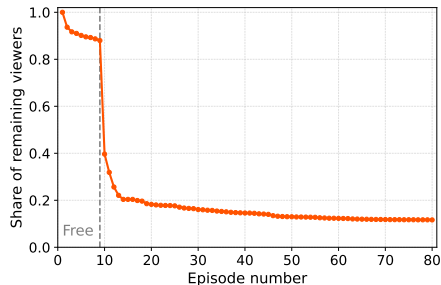
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 - **Unlocking**: per episode with tokens



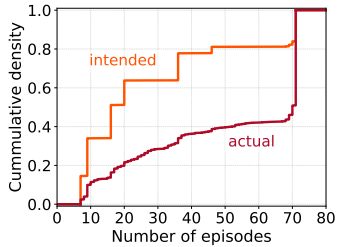
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 - **Unlocking**: per episode with tokens
 - **Token purchase**: non-linear menu



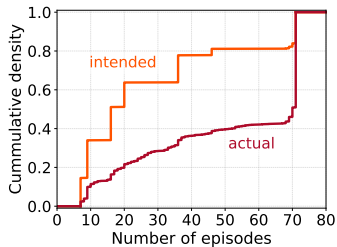
Price (\$)	episode	[p5,p95]	price/ep	mkt share
4.99	8.08	[7,9]	0.62	0.34
9.99	17.40	[16,20]	0.57	0.36
19.99	37.60	[36,46]	0.53	0.20
29.99	81.68	[62,92]	0.37	0.11

EVIDENCE: SELF-CONTROL PROBLEMS

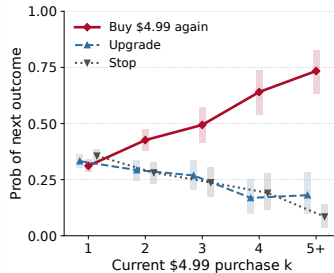


(a) Intended vs. actual consumption

EVIDENCE: SELF-CONTROL PROBLEMS



(a) Intended vs. actual consumption



(b) Not explained by learning

Structural Analysis

STRUCTURAL MODEL: PREFERENCES

- Drama structure: one-minute episode t at token price c_t

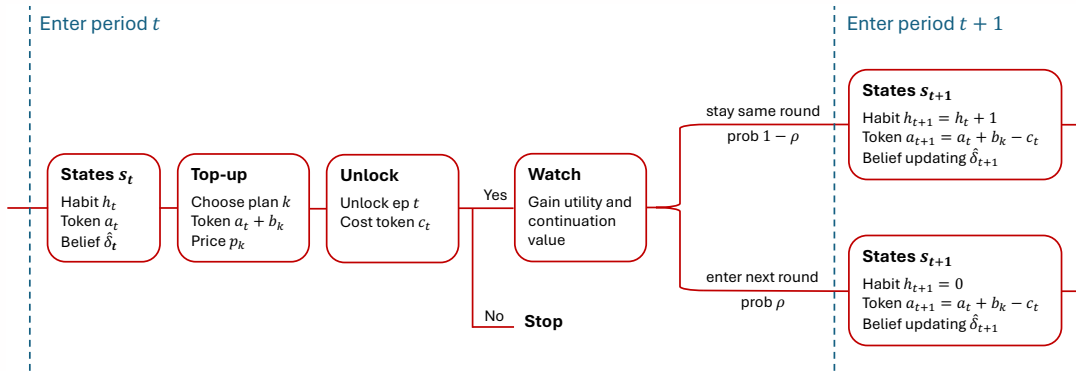
STRUCTURAL MODEL: PREFERENCES

- **Drama structure**: one-minute episode t at token price c_t
- **Perceived flow utility** from watching episode t for user i :

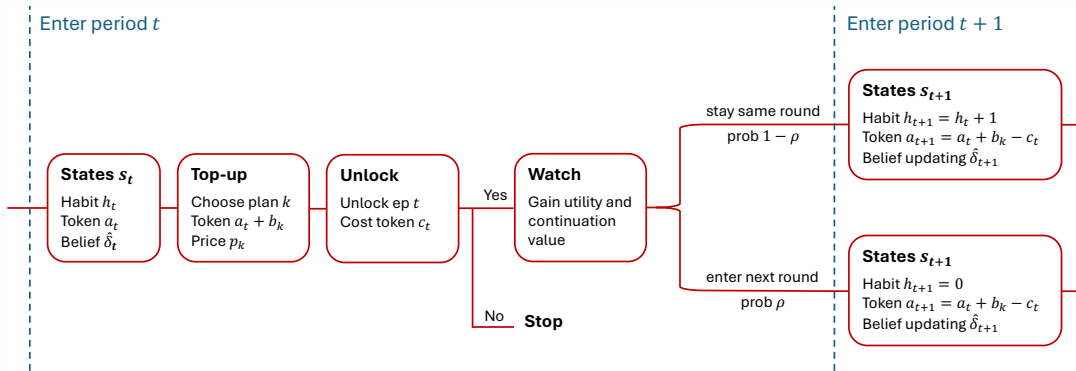
$$u_{it} = \underbrace{\hat{\delta}_{it} - \psi_{it}}_{\text{intrinsic value}} + \underbrace{\mathbb{1}\{\chi_i > 0\}\kappa}_{\text{temptation}} + \underbrace{\alpha(h_{it})}_{\text{habit formation}} + \epsilon_{it}$$

- **Bayesian learning**: Gaussian signal $x_{it} = \delta_i + \eta_{it}$ updates $\hat{\delta}_{it}$ recursively ► belief updating
- **Temptation**: magnitude κ , duration χ_i
- Habit formation: a function of habit stock (# episodes watched in a round)

STRUCTURAL MODEL: DYNAMICS

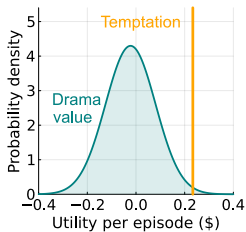


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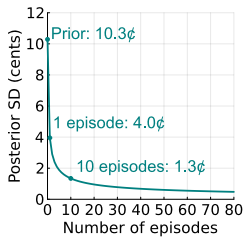


- Finite horizon $\Rightarrow$ full solution can be computed by backward induction

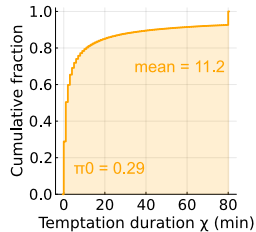
ESTIMATION RESULTS



(a) Value

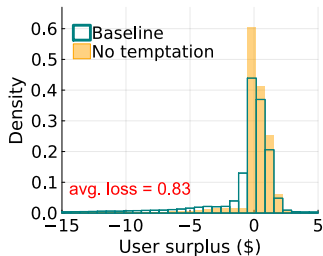


(b) Learning

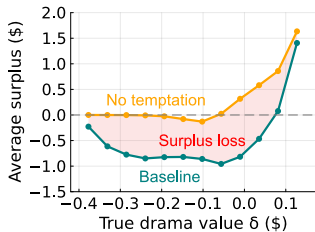


(c) Temptation duration

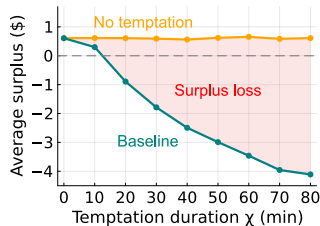
SURPLUS LOSS DUE TO SELF-CONTROL PROBLEMS



(a) Surplus distribution

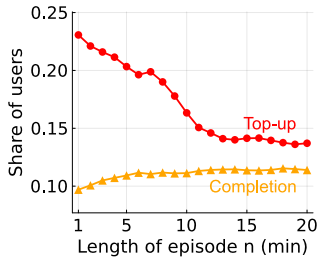


(b) By drama value

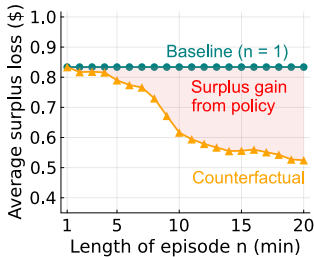


(c) By duration

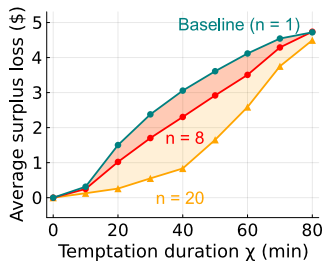
RESULTS: SHORT VIDEOS AMPLIFY SELF-CONTROL PROBLEMS



(a) User behavior



(b) Average surplus loss



(c) Loss by temptation duration

COUNTERFACTUAL POLICY

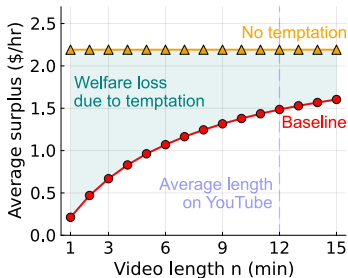
Outcomes	Baseline (1)	I. Min. Pack. Size		II. Time Limit		III. Break	
		> \$4.99 (2)	> \$9.99 (3)	$\Phi = 0.1$ (4)	$\Phi = 0.5$ (5)	1 min (6)	5 min (7)
I. <i>Per-user surplus</i>							
User surplus (\$)	−0.25	0.21	0.32	−0.16	0.06	−0.20	−0.07
Profit (\$)	5.32	4.01	3.64	4.54	3.87	5.09	4.61
II. <i>User activity</i>							
Top-up per token buyer (\$)	23.05	28.35	29.73	22.47	21.09	23.13	23.14
Frac. token buyer	0.23	0.14	0.12	0.20	0.18	0.22	0.20
Frac. completion	0.10	0.10	0.10	0.10	0.10	0.09	0.09
Frac. time limit complier				0.77	0.99		

- **Platform regulation:** remove \$4.99 package recovers \$0.46 per user
- **Individual policy**
 - Default time limit with small switch cost (\$0.5) recovers \$0.31 per user
 - A five-minute mandatory break upon top-up would recover \$0.18 per user

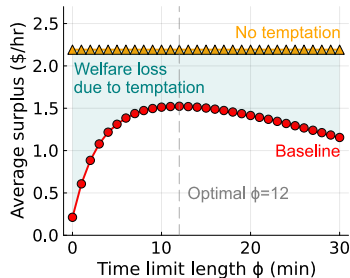
Conclusion

FUN EXERCISE: EXTRAPOLATE TO TIKTOK

- Stylized model with estimated distributions for intrinsic value (x) and temptation (κ, χ)



(a) Surplus loss due to short formats



(b) Policy: Default ϕ -minute time limit

⇒ Monthly surplus loss of **\$10.2 billion**; A default time limit could recover **\$6.8 billion**

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APPENDIX: QUASI-HYPERBOLIC DISCOUNTING

- Setup: an agent with present-biased preference

$$U_t = \underbrace{\sum_{\tau=t}^{t+\chi} \delta^{\tau-t} u_{\tau}}_{\text{present}} + \beta \sum_{\tau=t+\chi+1}^{\infty} \delta^{\tau-t} u_{\tau}$$

with two choices at each t :

- Work: delayed utility b at $t + \chi + 1$
- Entertain: immediate utility $\delta^{\chi+1}b + x$
- Prediction
 - Rational agent ($\beta = 1$) watches videos iff $x > 0$
 - Present-biased agent $\beta < 1$ watches videos iff $\delta^{\chi+1}b + x > \beta\delta^{\chi+1}b$
 - * Agent with $-(1 - \beta)\delta^{\chi+1}b < x < 0$ suffers from **self-control problems**
 - * Ex-ante: watch videos for χ minutes, then start working
 - * Ex-post: watch all the time

EVIDENCE: SELF-CONTROL PROBLEMS --- A LOWER BOUND

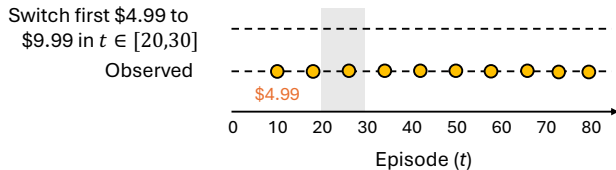
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- Rational alternative (uncertainty): buy small packs on earlier stage to acquire information
- Solution: obtain a lower bound for overpayment by *replacing the first \$4.99 package in a given episode bin with a larger package for all users*

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(a) User with self-control problem

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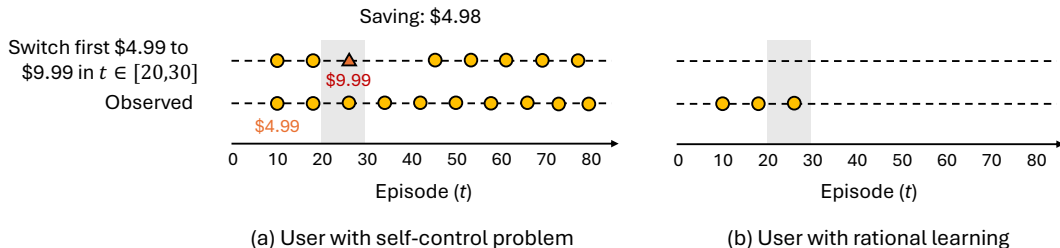
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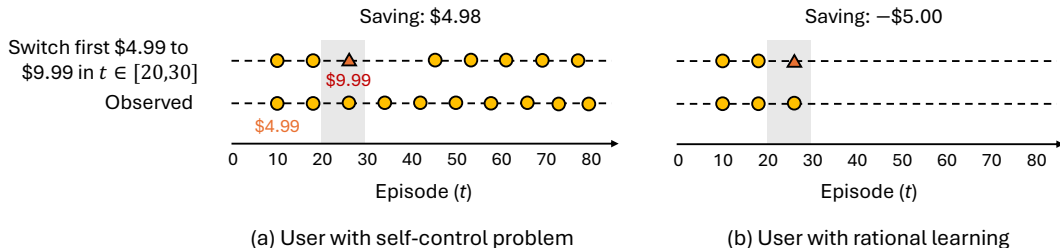
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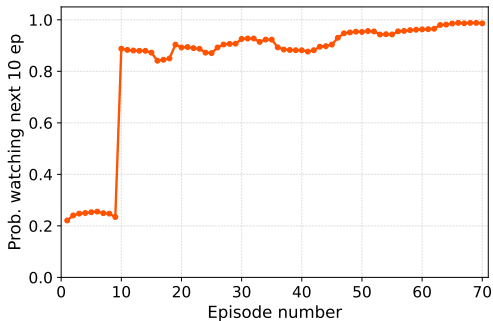
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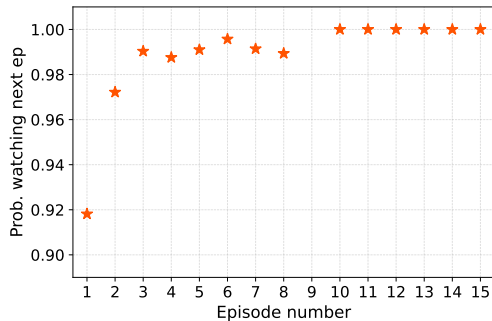
Episode (bin)		10-20	20-30	30-40	40-50	50-60	60-70	70-80
Switch \$4.99 to:	\$9.99	-1.72	-0.72	-0.84	0.20	0.30	2.62	-3.28
	\$19.99	-6.71	-4.75	-4.04	1.75	-2.05	-6.16	-13.28
	\$29.99	-10.05	-8.52	-8.70	-7.65	-12.05	-16.16	-23.28
Number of observations		797	203	140	97	74	83	154

⇒ Strong evidence for self-control problem when allowing for rational channels

APPENDIX: SECOND-ORDER LEARNING EFFECT



(a) Retention rate: watch 10 more episodes



(b) Retention rate: watch the next episode

APPENDIX: RECURSIVE BELIEF UPDATING

- User i enters with prior mean $\hat{\delta}_{i1} = \mu_\delta$ and variance $\hat{\sigma}_{i1} = \sigma_\delta$
- After episode $t - 1$, observe signal $x_{i,t-1} = \delta_i + \eta_{i,t-1}$ with $\eta_{i,t-1} \sim \mathcal{N}(0, \sigma_\eta^2)$

$$\hat{\sigma}_t^2 = \left(\frac{t-1}{\sigma_\eta^2} + \frac{1}{\sigma_\delta^2} \right)^{-1},$$
$$\hat{\delta}_{it} = \hat{\delta}_{i,t-1} + \underbrace{\frac{\hat{\sigma}_{t-1}^2}{\hat{\sigma}_{t-1}^2 + \sigma_\eta^2}}_{\text{Kalman gain}} \left(x_{i,t-1} - \hat{\delta}_{i,t-1} \right)$$

- Posterior mean $\hat{\delta}_{it}$: stochastic learning state
- Posterior variance is deterministic in t and need not be carried as a separate state

APPENDIX: ESTIMATED HABIT FORMATION

