"Just One More Clip":

Short Videos, Big Self-Control Problems

Renjie Bao
Princeton

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May 21, 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: short content $\Rightarrow$ small unit of commitment $\Rightarrow$ sustained overconsumption
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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

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  - Intrinsic value x: *true* utility per minute
  - Temptation (κ, χ): bias pull toward immediate entertainment
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- 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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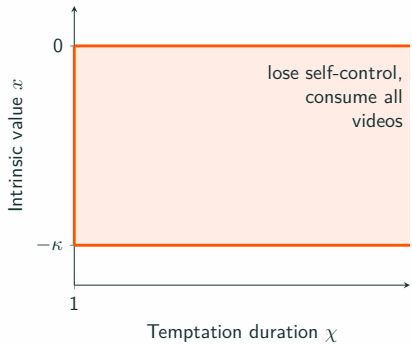

Proposition (Self-control problems)
Users with $x \in (-\kappa, 0)$ and $\chi \geq 1$ watch more videos than they initially prefer.

Short Videos Amplify Self-Control Problems

- Comparative statics in video length n
  - Perceived flow utility is:

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

  - Longer content attenuates perceived utility
    - If $n \leq \chi$: entire n-minute video is tempting
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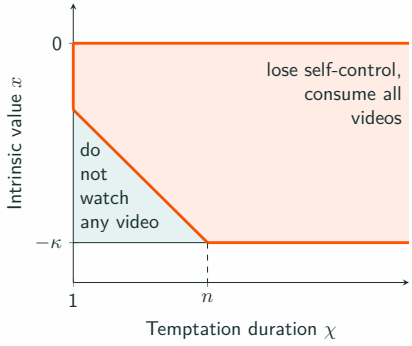
  - Falling into self-control trap iff $\widetilde{u}_t^t > 0$, that is:

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



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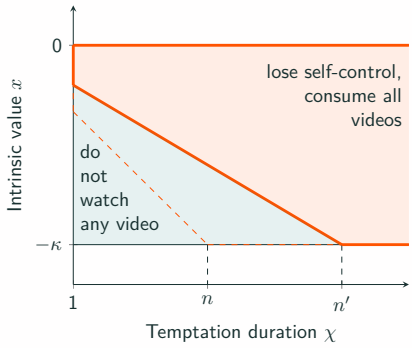


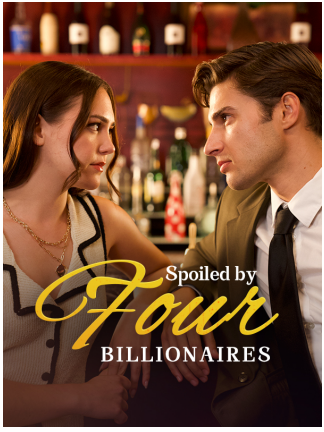
Proposition (Shorter videos exacerbate self-control problems)
Shorter formats draw more users into the self-control trap, increasing surplus loss from temptation.

Context: Short Drama Series

Short-Drama Platform

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

"high on drama, low on glam, and full of plot twists"



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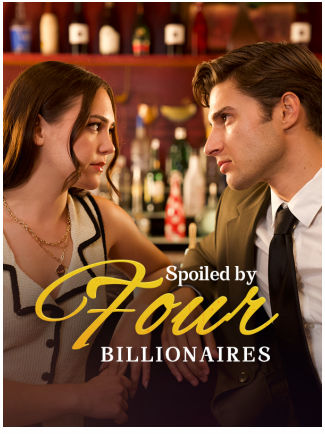
- The short-drama platform: leading in U.S. market
  - DAU: 100k by May, 2024
  - Users acquired via Facebook/TikTok ads



Motivating Fact: Shorter Episodes Predict Higher Completion

- Drama-level regression:

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	Completion rate (%)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Episode length (minutes)	−2.18	−2.75**	−3.22**	−2.79**	−2.58**	−2.46***	−2.42***
	(1.52)	(1.14)	(1.28)	(1.25)	(1.02)	(0.92)	(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

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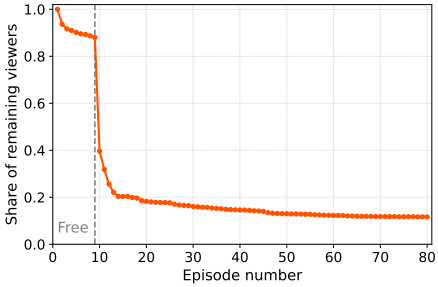

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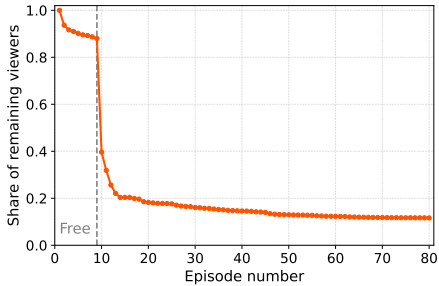
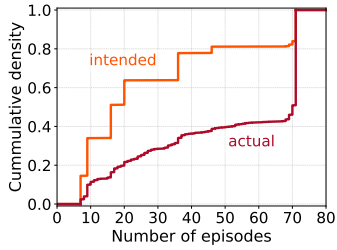
  - Token purchase: non-linear menu



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

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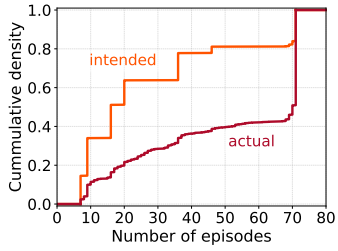

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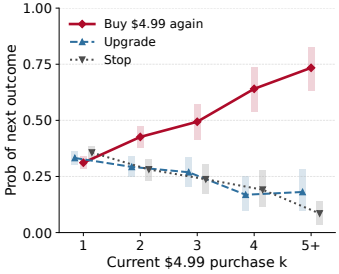

(b) Not explained by learning

Structural Analysis

Structural Model: Preferences

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

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- Perceived flow utility from watching episode t for user i:

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

  - Bayesian learning: Gaussian signal $x_{it} = \delta_i + \eta_{it}$ updates $\widehat{\delta}_{it}$ recursively ▸ belief updating
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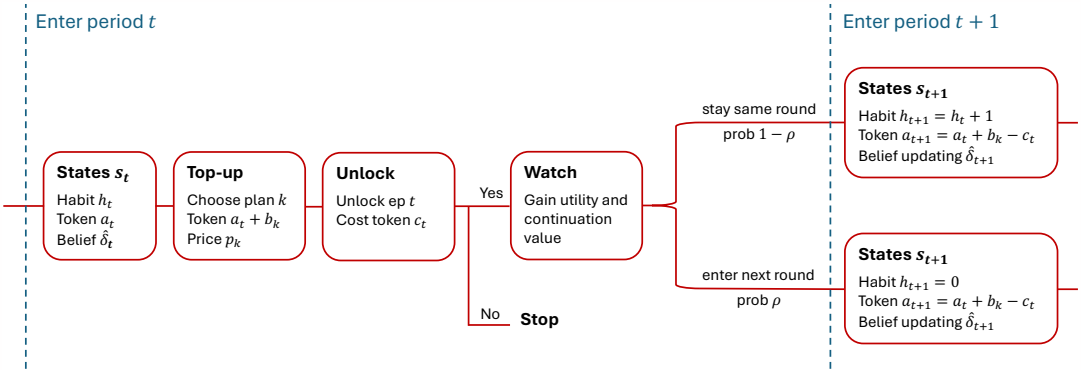
- Naïveté: lower bound of temptation

Structural Model: Dynamics



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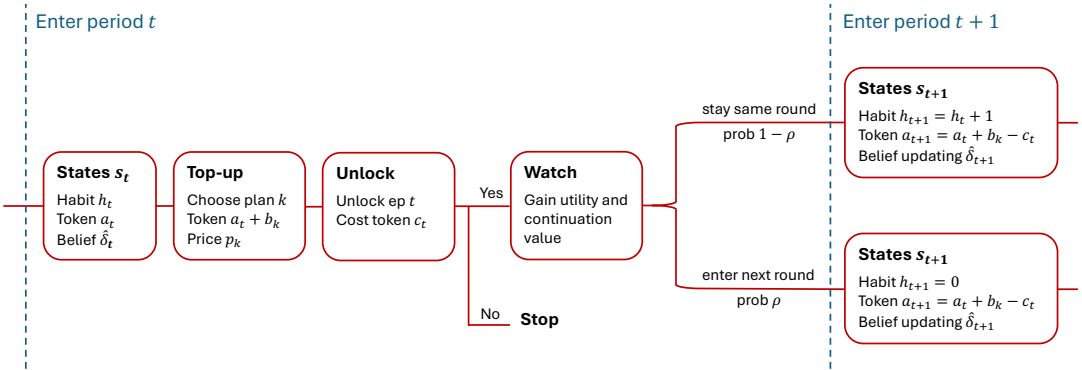
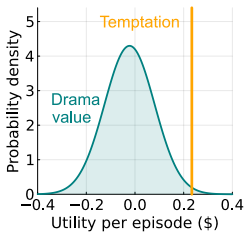
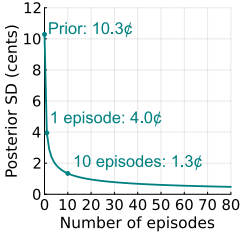


- Finite horizon $\Rightarrow$ full solution can be computed by backward induction

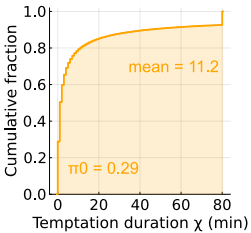
Estimation Results



(a) Value

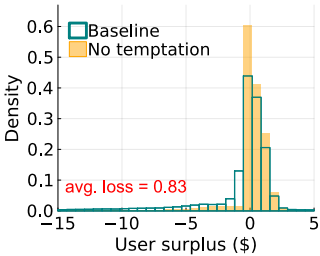


(b) Learning

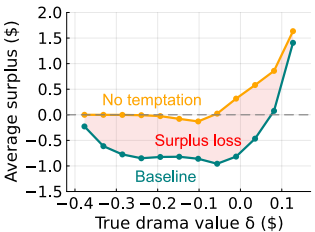


(c) Temptation duration

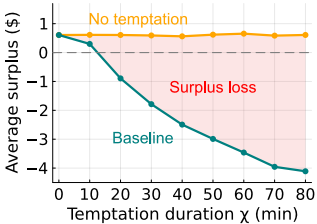
Surplus Loss due to Self-Control Problems



(a) Surplus distribution

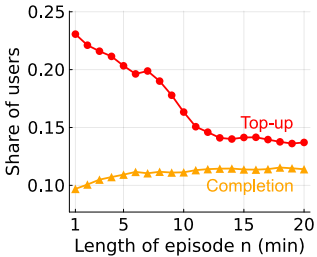


(b) By drama value

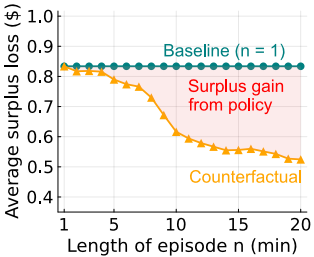


(c) By duration

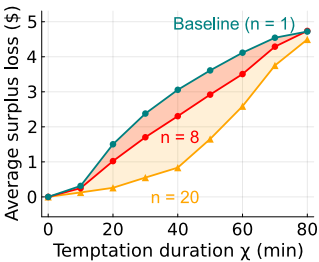
Results: Short Videos Amplify Self-Control Problems



(a) User behavior



(b) Average surplus loss



(c) Loss by temptation duration

Counterfactual Policy

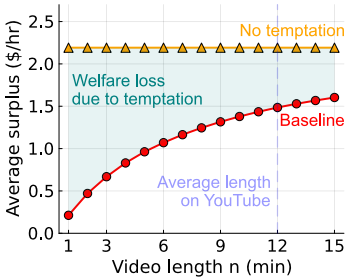
Outcomes	Baseline	I. Min. Pack. Size		II. Time Limit		III. Break	
		$> \$4.99$	$> \$9.99$	$\Phi = 0.1$	$\Phi = 0.5$	1 min	5 min
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
I. *Per-user surplus*							
User surplus ($)	−0.25	0.21	0.32	−0.16	0.06	−0.20	−0.07
Profit ($)	5.32	4.01	3.64	4.54	3.87	5.09	4.61
II. *User activity*							
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

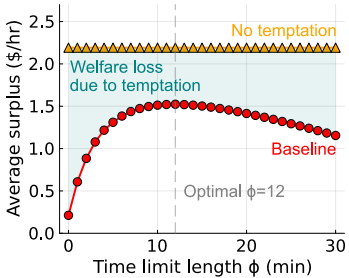
Conclusion

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

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

"Just One More Clip":

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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

Back

Evidence: Self-Control Problems --- A Lower Bound

- Rational alternative (uncertainty): buy small packs on earlier stage to acquire information

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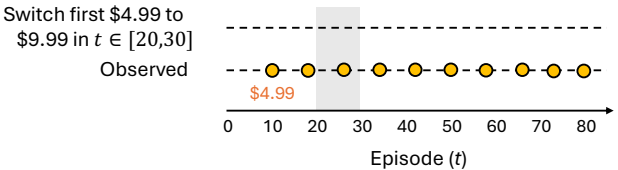

(a) User with self-control problem

Evidence: Self-Control Problems --- A Lower Bound

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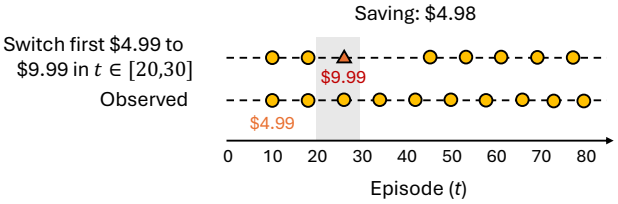
- Solution: obtain lower bound for overpayment by *replacing the first $4.99 package in a given episode bin with a larger package for all users*



(a) User with self-control problem

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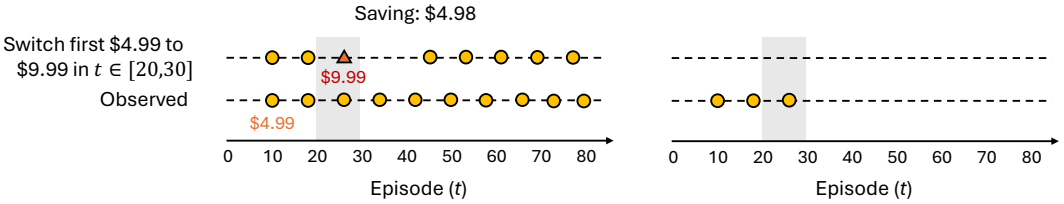

(a) User with self-control problem

(b) User with rational learning

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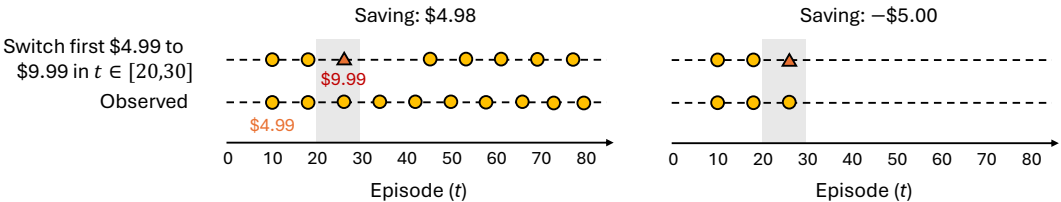

(a) User with self-control problem

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Evidence: Self-Control Problems --- A Lower Bound

- Rational alternative (uncertainty): buy small packs on earlier stage to acquire information
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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

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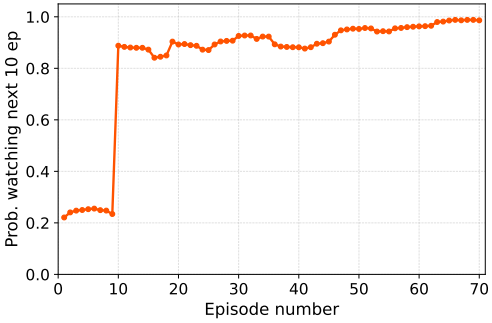
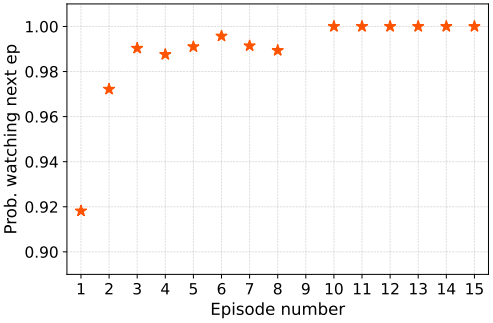
Appendix: Second-Order Learning Effect



(a) Retention rate: watch 10 more episodes



(b) Retention rate: watch the next episode

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Appendix: Recursive Belief Updating

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

$$\widehat{\sigma}_t^2 = \left(\frac{t-1}{\sigma_\eta^2} + \frac{1}{\sigma_\delta^2} \right)^{-1},$$

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

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

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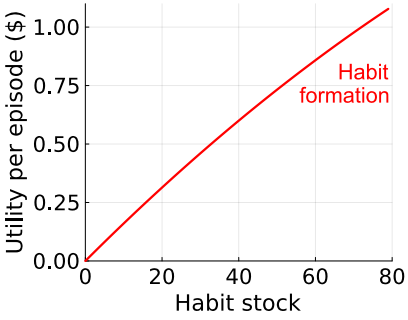
Appendix: Estimated Habit Formation



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