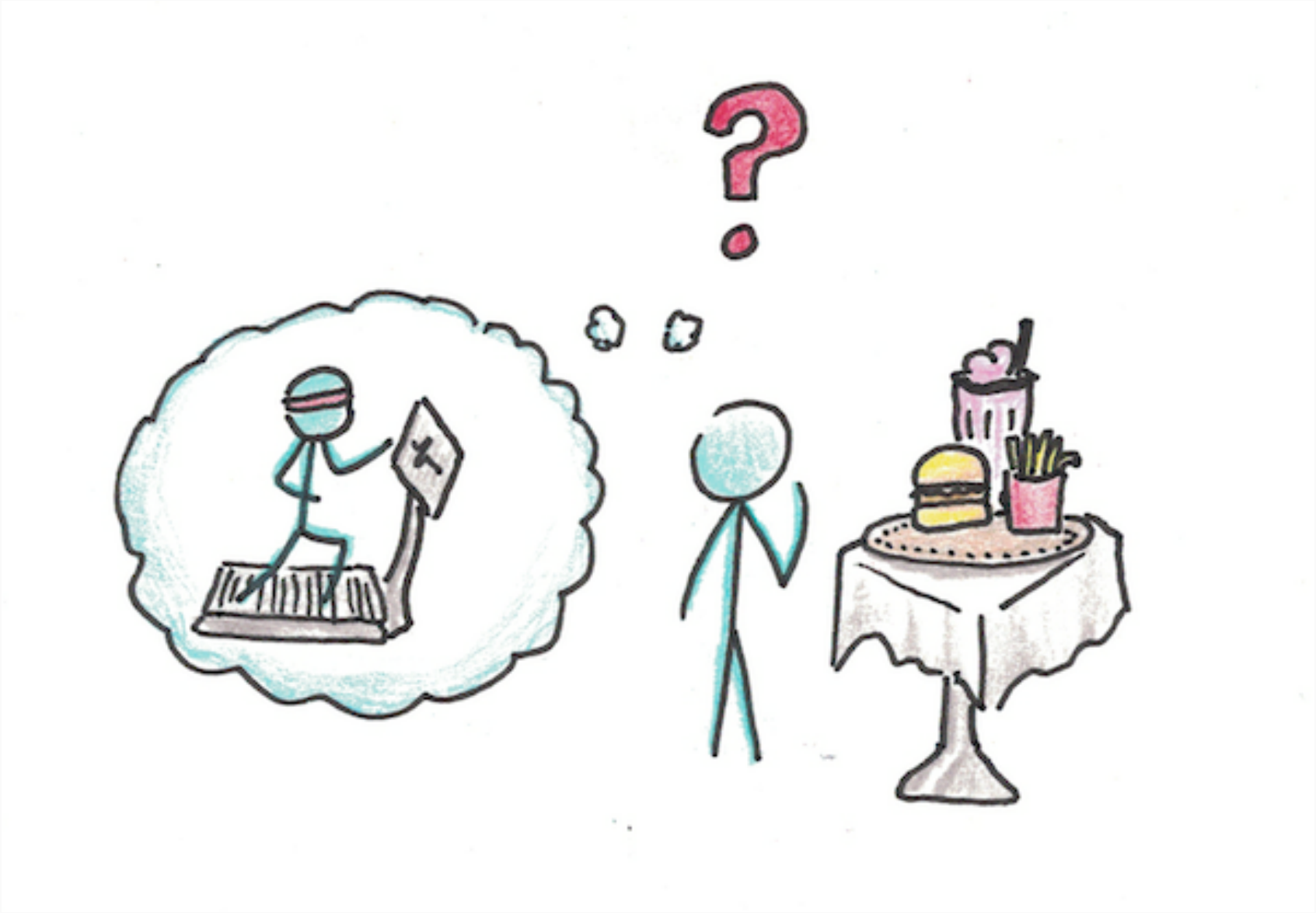
Hard *vs* Soft commitments

Experimental evidence from a sample of French gamblers

P. Bettega, P. Crosetto, D. Dubuois, R. Romaniuc

VŠE Prague – May 12th 2023

The usual ice-breaker joke



A confession

• • •

Commitment devices

Restricting your future choice set

Commitment devices

Restricting your future choice set

Hard commitment

- Ulysses and the Sirens
- Mortgage
- This talk

Commitment devices

Restricting your future choice set

Hard commitment

- Ulysses and the Sirens
- Mortgage
- This talk

Soft commitment

- New years' pledges
- Coauthor deadlines
- Marriage (?)

Commitment devices: EUT

Under EUT, commitment devices shouldn’t exist

Commitment devices: EUT

Under EUT, commitment devices shouldn't exist

- Cutting choices you *wouldn't* make anyway: irrelevant
- Cutting choices you *would* make: lower utility

Commitment devices: other approaches

Still, demand for commitment can be rationalized

Commitment devices: other approaches

Still, demand for commitment can be rationalized

- Multiple selves
- Cost of resisting temptation
- Fast vs Slow

Temptation & commitment: experiments

experiments have documented demand for commitment

(not that we needed the experiments to know . . .)

Temptation & commitment: experiments

experiments have documented demand for commitment

(not that we needed the experiments to know . . .)

- Houser et al. (tedious task, surfing)
- Toussaert (tedious task, reading story)
- Alcott et al. (digital consumption)

This paper

soft *vs* hard commitments among gamblers

Research questions

- Do gamblers have a demand for commitment?
- How do *soft* vs *hard* commitment impact behavior?
- . . . in the domain of risky choices.

Task

(modified) **Balloon Analog Risk Task (Lejuez et al 2022)**

- Intuitive
- Live explosions $\Rightarrow$ thrill of the moment
- Adapted to avoid truncation, show probabilities

Task

Round 1

Read again the instructions

Please enter the number of air injections you wish to send into the balloon (max 64):

Ok

Task

Round 1

Read again the instructions

22

Please enter the number of air injections you wish to send into the balloon (max 64):

40

The balloon exploded after 22 injections, you win 0.00 €

Next

Treatments

Baseline (N = 803)

used as a counterfactual

- 5 BART repetitions
- 10 sec pause
- 5 BART repetitions

Commitment (N = 724)

demand for & consequences of

- 5 BART repetitions
- Possibility to set a limit
- 5 BART repetitions

Commitment

How does the commitment work?

Commitment

How does the commitment work?

first: **commit** or **not**? (0/1)

then: commitment **level** (1..64)

finally: if commitment,

- **25%** cases: binding
- **75%** cases: *not* binding

Commitment characteristics

- Endogenous limit $\Rightarrow$ *intensive margin*
- All commits are *potentially hard*
- We *do not* observe demand for soft commitment
- We do observe
  - impact of avoiding commitment opportunity
  - strength of self-imposed commitment
  - impact of limit whether binding or not

Sample

We recruit people having gambled with FDJ

Sample

We recruit people having gambled with FDJ

- *Française Des Jeux*: French state gambling agency
- Fully anonymous: recruitment by **Bilendi**
- 1576 out of 4798 participants to a larger experiment
- (about impact of different ads on risk taking)

Sample

We recruit people having gambled with FDJ

- 44 (13.9) years old
- 62% male
- 46% blue collar, 25% white collar, 11% unemployed
- 14% retired, 2% students

Experimental details

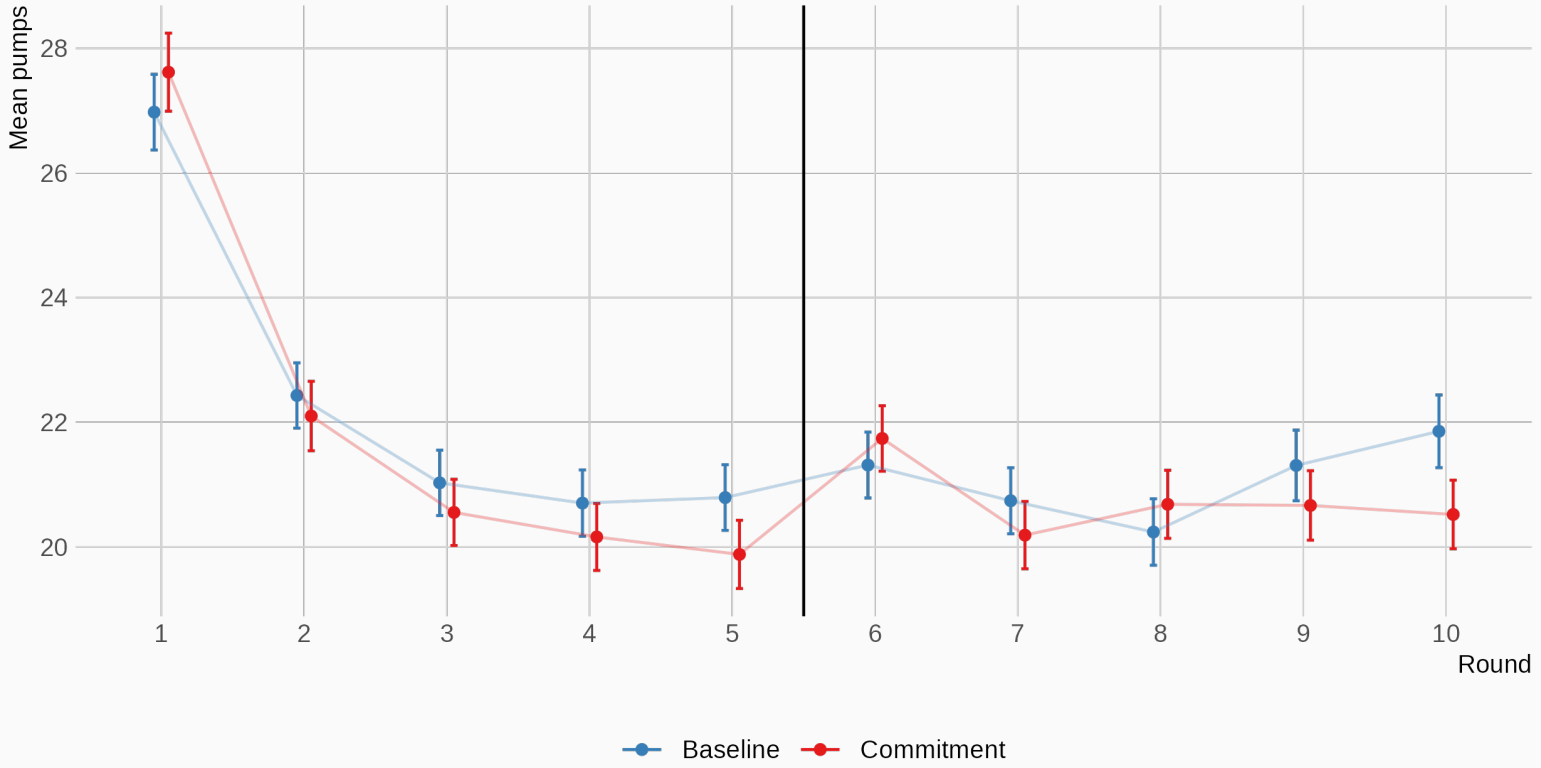
- Sessions online Fall 2019 (*yes, I know*)
- Otree
- Individual codes: participate only once
- Recruited by middleman: strict anonymity
- Pay one random repetition
- Subjects paid via paypal
- 5€ show-up fee
- 1.6€ (1.84) mean payment

Results

About the data and analysis

- 1527 observations
- no pre-registration (*yes, I know*)
- data & scripts (R) available on github

Data: dropping period 1



Period 1 $\neq$ all other periods – "*practice*" round – dropping it

Part 1:
Demand for commitment

Demand for commitment

35.1% of subjects set themselves a limit

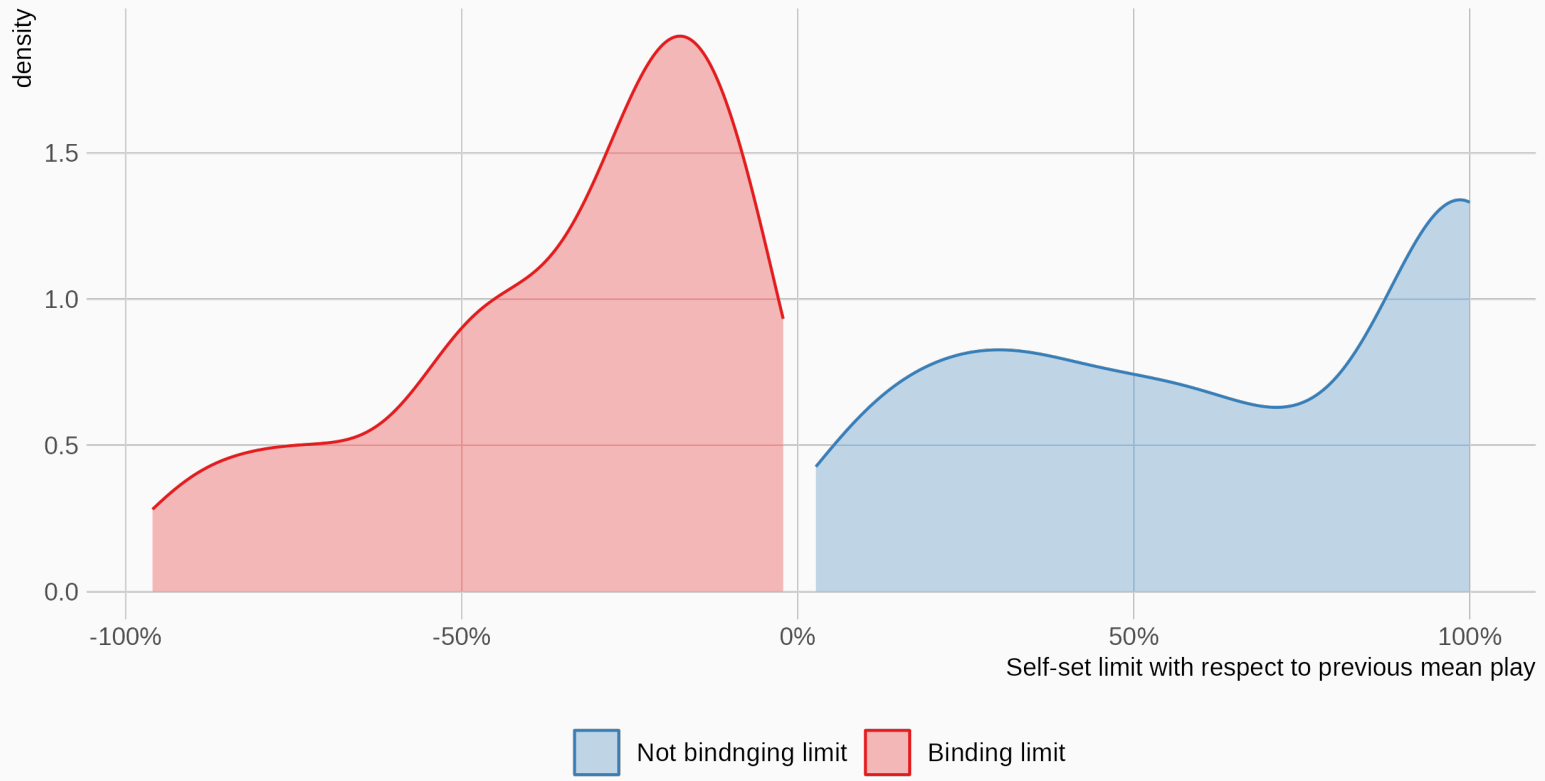
- Houser et al $\Rightarrow$ 28.6%
- Toussaert $\Rightarrow$ 35.8%
- Acland and Chow $\Rightarrow$ 25%

- *but:* Alcott et al $\Rightarrow$ 78%

Commitment harhsness: limits with respect to previous play

	Share of subjects who pump ... their previous behavior		
	...below...	...at...	...above...
With respect to the max			
Soft commit	43.85	13.90	42.25
Hard commit	46.27	10.45	43.28
With respect to the mean			
Soft commit	74.33	4.81	20.86
Hard commit	80.60	1.49	17.91

Commitment harshness: limits with respect to previous play



Many set a non binding limit – for those who do it is substantial

Part 2:
Impact of commitment

Behavior after setting the limit

Nature of the limit	Change in behavior	Share of subjects	Mean change
Soft commitment			
Biting (26%)	Reduction	79.17%	-0.94
	No change	8.33%	–
	Increase	12.5%	0.43
Non-biting (74%)	Reduction	43.88%	-0.18
	No change	0.72%	–
	Increase	55.4%	0.22
Hard commitment			
Biting (19%)	Reduction	92.31%	-1.01
	No change	7.69%	–
	Increase	–	–
Non-biting (81%)	Reduction	50%	-0.15
	No change	1.85%	–
	Increase	48.15%	0.18

Five different groups

Baseline no limits offered: benchmark

Refused refused the possibility to commit

Soft decided to commit: limit not applied

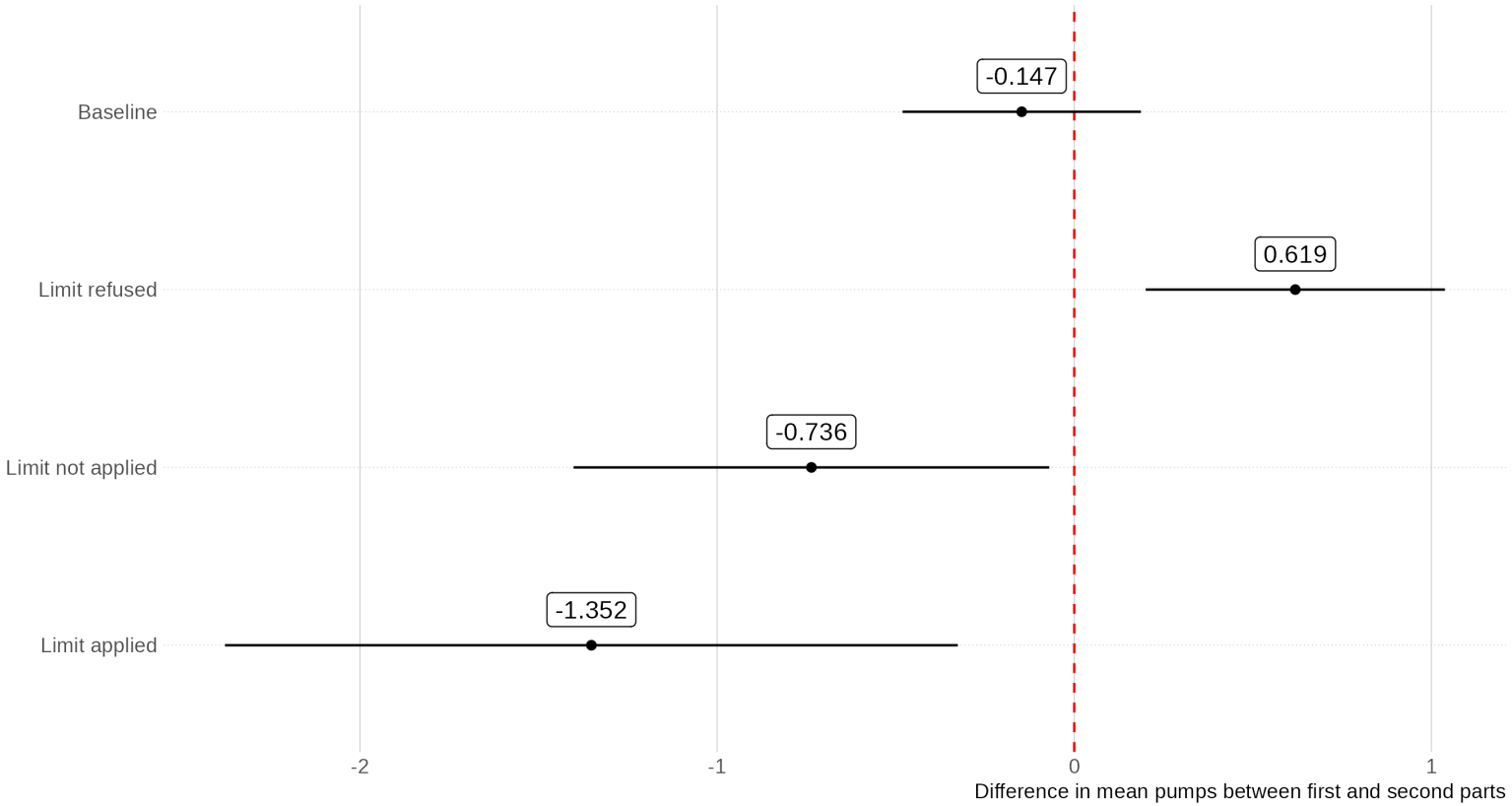
Hard decided to commit: limit applied

What if? Applying the hard limit to the soft people

Impact of commitment on risk taking

	Rounds 2 – 5	Rounds 6 – 10	Difference
Baseline	21.24 (12.15)	21.09 (12.9)	-0.15 (9.46)
Limit refused	21.06 (12.04)	21.68 (12.81)	0.62 (9.09)
Soft commit	19.87 (12.21)	19.14 (11.68)	-0.74 (9.11)
Hard commit	20.16 (11.49)	18.81 (10.47)	-1.35 (8.4)
What if?	19.87 (12.21)	17.55 (11.02)	-2.33 (9.15)

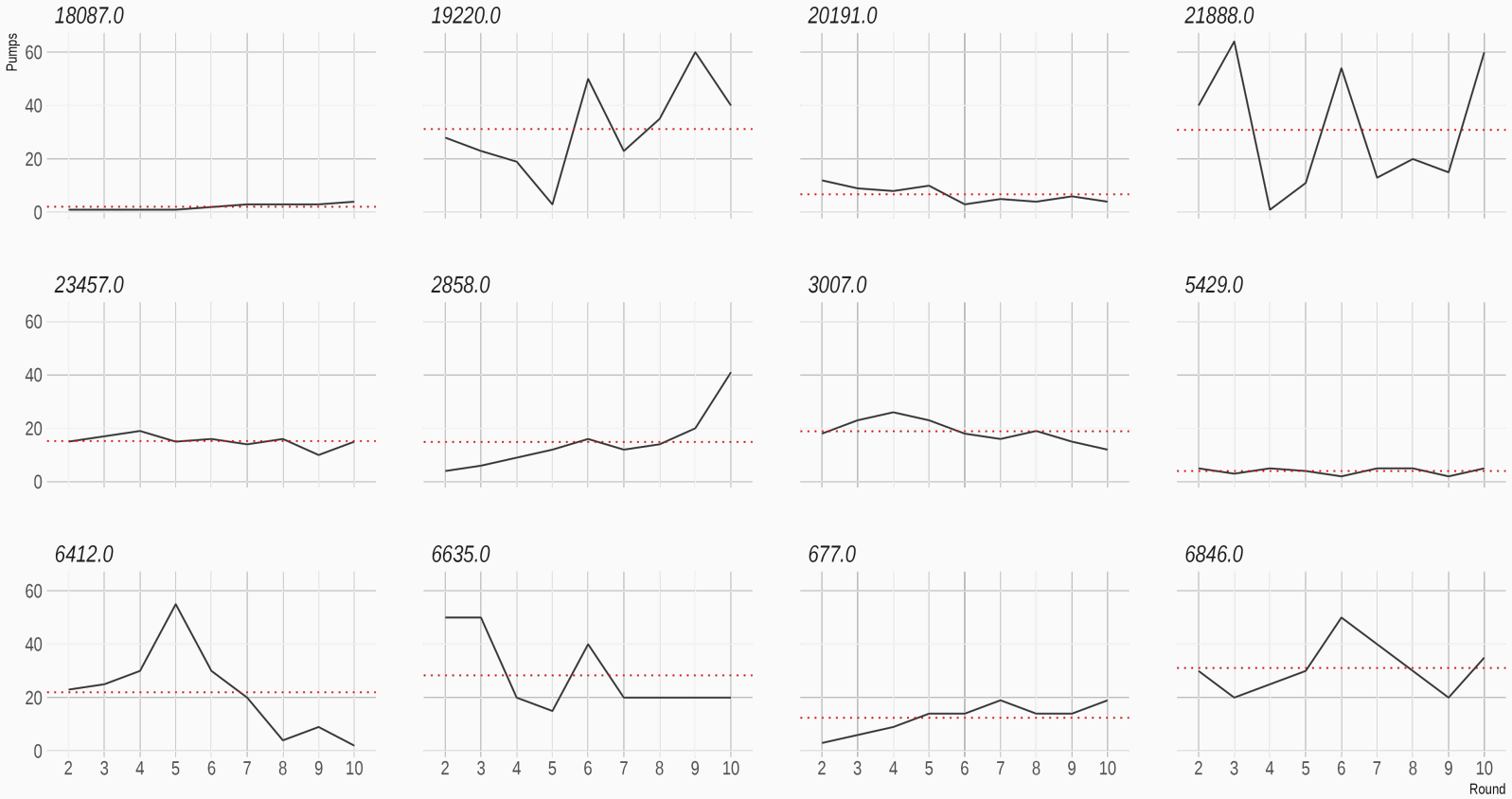
Are those differences significant? A traditional analysis



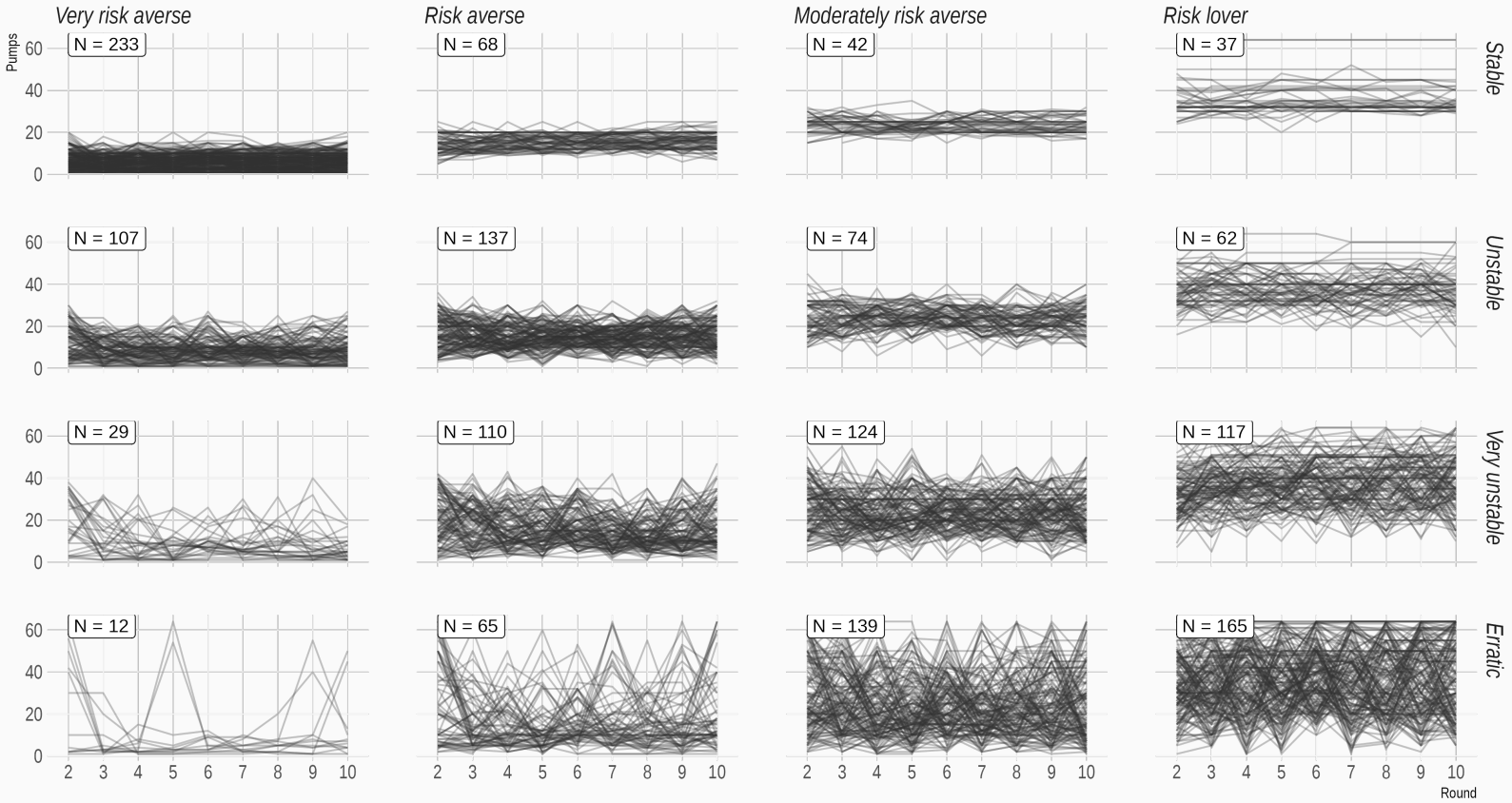
We can't *really* trust that. Why?

- t-tests on means rely on assumptions about the data
- we pack here *within-subject* variation too
- it's (cross-section) means of (time series) mean
- if subjects' behavior dynamically erratic – *problem*

Erratic behavior: just some subjects



Erratic behavior: all subjects



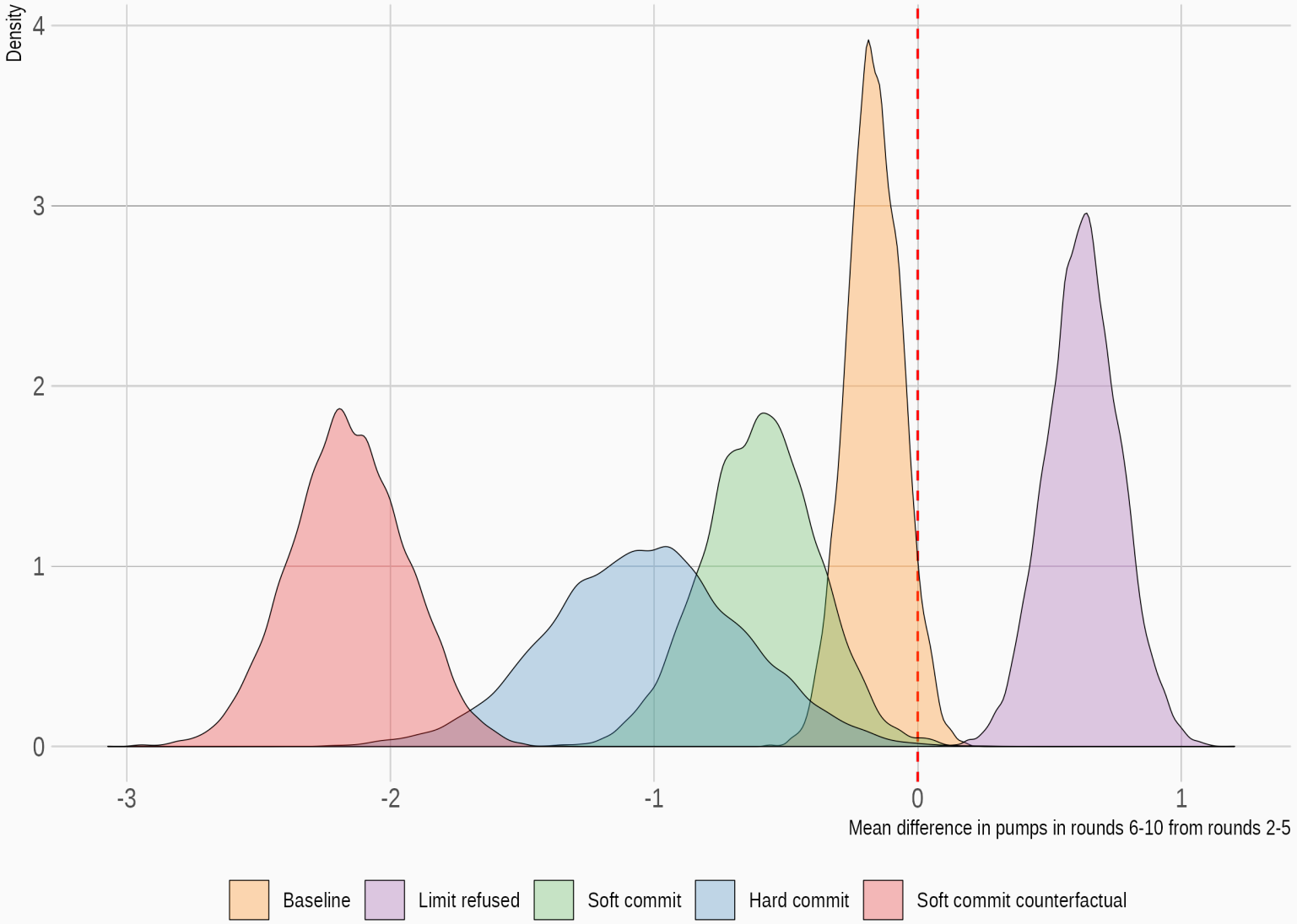
Solving the problem: MCMC

- We run a *Markov Chain Monte Carlo* analysis
- i.e. we generate data starting from our real data
- then run analysis on all these datasets
- this yields a *distribution* for the mean

MCMC: results

	Mean difference	95% credible interval
Baseline	-0.16	[-0.38, 0.05]
Limit refused	0.63	[0.34, 0.91]
Soft commit	-0.60	[-1.03, -0.18]
Hard commit	-1.04	[-1.75, -0.32]
Soft commit counterfactual	-2.16	[-2.59, -1.75]

MCMC: results



So, Soft = Hard?

Yes and **No**

- Share of subjects complying with limit similar
- Harshness of pump reduction similar
- Hard not very different from soft on average
- MCMC: same story

But

- *what if?* group
- Soft commit subjects had asked for much harsher limits
- So they actually changed *much less* than desired

Thank you!

(now I really have to find another *hard* commitment to submit the paper!)