

1 MOTIVATION

- » The predominant payment scheme for goods provided by public utilities (telecommunication, water, gas, electricity) is pay-later billing
- » Consequence: Intertemporal trade-off between immediate consumption benefits and future payment of costs.
- » Prior literature: Present-biased discounting of costs and overconsumption of the good paid by bill (e.g., Angeletos et al. (2001), Meier and Sprenger (2010), Kuchler and Pagel (2018)) - but this evidence as recently been challenged (e.g., Kaplan and Violante (2014), Augenblick et al. (2015), Andreoni and Sprenger (2012))

THIS STUDY

- » Bring insights from contract-design studies to bill payment (e.g., Kauer et al. (2015), Aggarwal et al. (2020)): Can 'pay-as-you-go'-schemes reduce consumption?
- » Use lab experiment to attribute 'over'-consumption under pay-later billing to present bias

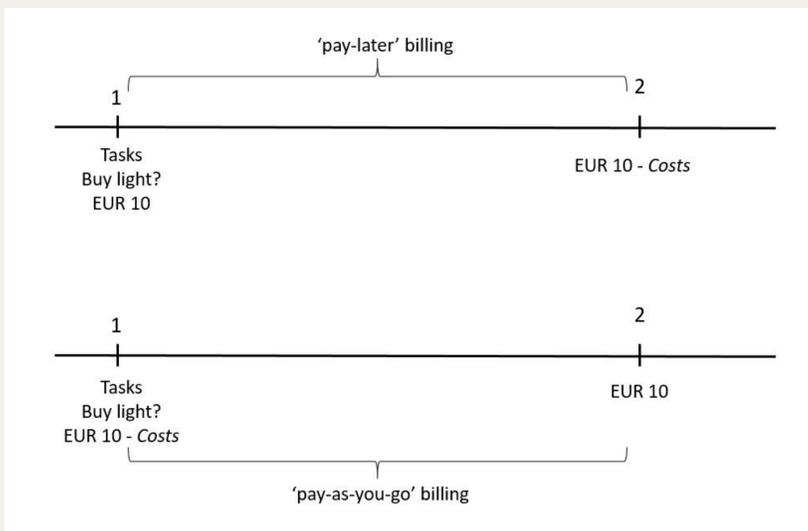
2 EXPERIMENTAL DESIGN: BASIC IDEA

- » 170 students are asked to solve a fixed number of real effort tasks
- » Task: Find a certain letter in a table full of random letters
- » Problem: The table is displayed with weak contrast.
- » Students can press a 'light switch' to increase contrast - but: Each second of 'light' costs 0.5 eurocents.
- » Randomize timing when light costs are paid: Either immediately ('pay-as-you-go') or one-week after consumption ('pay-later')

Holding constant:

- » Information and saliency of costs: 'meter' with real-time feedback
- » Transaction costs: Both groups had to appear on both dates
- » Payment credibility: Grace period of three days around date 2, multiple reminder emails, contact details of the institute and myself, show-up fee gave incentive to arrive for payment (min 5 euro payment on both dates)
- » Only difference between groups: One-week discounting in pay-later
- » Since exponential discounting parameter must be unity for one-week: Difference in consumption must be driven by present bias

3 EXPERIMENTAL DESIGN: TIMELINE



4 EXPERIMENTAL DESIGN: TASKS

Task with light switched on



Task with light switched off

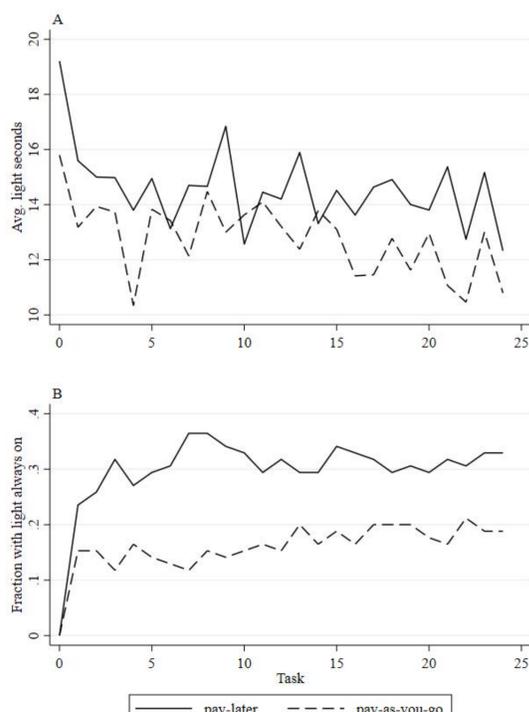


5 RESULTS

- » pay-later: On average 6 min of light, 1.82 euros light costs, 30 percent light always switched on
- » pay-as-you-go: On average 5 min of light, 1.60 euros light costs, 16 percent light always switched on

Panel regression:

- » pay-as-you-go consume 2 sec less per task (significant at 10-percent level)
- » pay-as-you-go have 13 percent lower probability to have light always switched on (significant at 1-percent level)



6 CONCLUSION

- » Pay-as-you-go schemes significantly reduce consumption compared to pay-later billing
- » This difference must be driven by extreme short-term, or quasi-hyperbolic discounting
- » Results advocate shift to pay-as-you-go schemes, particularly if externalities are involved. Realize a double dividend: Reducing overconsumption both from present-biased agent's and society's perspective
- » Results raise doubt as to the effectiveness of classic price-based policies if good is billed under pay-later - in this case Pigouvian taxes will need correctives
- » Future work: Disentangling and estimating the overlapping effects of 'real-time' payment and real-time feedback