Review of Clark et al. (2020)[1] – Using Goals to Motivate College Students

1. Research question and theory

The research of Clark et al. aims to answer the question *"whether goal setting can motivate college students to work harder and achieve better outcomes"*. The study is about goals set by the students themselves (rather than set by an external party). The paper studies the effects of two types of goals: task-based and performance-based ones. Task-based goals relate to the performance of a particular study task (in the study, this is filling out a set number of practice exams), while performance-based goals relate to the overall performance in the course (measured by the percent grade achieved). The theoretical background behind why goal setting might be an effective way to improve outcomes lies in the concepts of present bias and loss aversion. If students are present-biased and loss averse, then setting goals may be an effective way to increase performance.

2. Data collection

The experimental data was collected in a large, public, land-grant US university during the 4 semesters in 2013 and 2014 on an introductory microeconomics course. The course sessions could be attended live on campus or watched online asynchronously. Performance-based goals were studied in the first two, task-based goals in the last two semesters. In total, appr. 4,000 students participated in the experiment (2,004 for task-based, 1,967 for performance-based goals). Information on the students' demographics and performance was obtained from the university's registrar data. Students were assigned to the treatment and control groups randomly after consenting to participation in the experiment.

3. Experiment setup

The outcome variables of the study are overall course performance (measured by the percent grade) for both goal types and task-completion rate (measured by the number of practice exams completed) for task-based goals only. The causal variable is whether the student was asked to set some type of goals. The subjects of the study were university students. The intervention was the researchers asking treatment group students to make some goals. The mechanism through which a causal link may be present is described in Sec. 1.

4. Results

To estimate the causal effect of asking students for setting goals on the outcome variables (the measurement of which is described in Sec. 3.), the study employs a simple OLS estimation for the task-completion and OLS and quantile regression for the overall performance. The outcomes are regressed on a dummy variable denoting whether the student was in the treatment group. All models are presented without controls and with controlling for demographics to show robustness. All models are also included with a gender breakdown.

The results suggest that asking for task-based goals increase mean task-completion by 0.10 SD units and overall performance by 0.07 and 0.10 SD units in the mean and median, respectively. These effects are statistically significant. Gender breakdowns tell us that the effects are only present among males. While task-based goals showed a positive effect, asking for performance-based goals had no statistically significant effect, neither in pooled models, nor in gender breakdowns.

5. Discussion

5.1. Importance of the results

The importance of the results lies in the increasing concern of policymakers over the fact that college students today put too little effort into their studies, hindering their learning outcomes, graduation prospects and labor market possibilities. Previous ideas to counter this phenomenon mainly focused on financial incentives to increase students' efforts (e.g. stipends for increased performance). However, these solutions proved to be quite expensive and relatively ineffective at the same time. In contrast, introducing goal setting as an intervention to increase students' performance is very low cost, highly scalable and logistically simple, while it shows more or less the same magnitude effects as financial incentives. Thus, incorporating task-based goals into college environments may be a sensible way to increase students' performance significantly.

5.2. Internal validity

Overall, the design of the randomized experiment is sound, thus the internal validity of the study is rather high. This means that we can be rather sure that it was indeed the treatment that resulted in increased task completion and overall performance in the treatment group rather than any other factor. This is best shown by the fact that controlled and uncontrolled models provide very similar results. Most internal validity concerns one could raise (e.g. possible spillover effects to untreated students from treated ones) are thoroughly addressed by the authors – though most often only in a qualitative way. The only threat to internal validity that is not addressed is the confusion between actual ATEs and intention to treat effects. The authors make claims about the effects of goal setting whereas in regression tables they report effects of asking students to set goals. I argue that the latter option is the correct one, because there is no guarantee that (1) control group subjects did not set their own goals and (2) that treatment group subjects actually set goals (even though they said so). So, what this study could properly measure was only the effect of asking students to set some goals.

5.3. External validity

If we accept the authors' arguments about the causal mechanism through the present biased and loss averse characteristics of students, then the external validity of the results depends how much these characteristics generalize in other settings. E.g. students may be more invested in courses where there is no asynchronous participation possibility, thus low self-control may be less of a problem and as a result, the identified effects may not hold well, as noted by the authors too. Moreover, different university types and different programs may attract students with different characteristics, hindering external validity again. Lastly, as the study was conducted in the US and 10 years ago, one should be quite cautious in generalizing the results to the present day (e.g. students' characteristics may have changed as a result of the global crises in recent years) or to other countries (as again, non-US students' characteristics may be very different). All in all, I believe that the external validity of the study is rather low and assessing it more thoroughly would require more data on student characteristics.

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[1] Clark, D., Gill, D., Prowse, V., & Rush, M. (2020). *Using goals to Motivate college students: Theory and evidence from field experiments. The Review of Economics and Statistics, 102*(4), 648–663. https://doi.org/10.1162/rest_a_00864