

Success Breeds Success: Weight Loss Dynamics in the Presence of Short-Term and Long-Term Goals

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This poster is a preliminary version and excerpts from: Kosuke Uetake and Nathan Yang (2017). “Success Breed Success: Weight Loss Dynamics in the Presence of Short-Term and Long-Term Goals.” Working Paper.

Introduction

- In weight management, nutritionists and health scientists have speculated that personal goals are key motivational forces behind weight loss success.
- A long-term goal can be thought of as the target weight that people aspire towards. Some will reach their goal, but unfortunately many will fail as the achievement of difficult goals require focused attention and motivation over time, as well as high levels of self-control.
- Naturally, a common issue faced by those seeking to lose weight is that their goals tend to be unrealistic.
- A potentially effective goal-setting strategy may be to employ short-term targets as these goals can provide quick motivational gains and may ultimately be more attainable.
- In response to such customer needs, some mobile applications now help users achieve their fitness and weight goals, where a new feature across many of these services is the use of short-term goals (e.g., daily weight and calories consumption targets) as a way to motivate users, whereby smart- phones have enabled users to track their progress and activities very easily, much more so than food diaries.

Data

- We study the relationship between short-term and long-term goal accomplishment using novel data from a large-scale freemium mobile application (Lose It!). This data allows us to track daily patterns in weight and calories performance for well over 40,000 active users.⁶ Most importantly, this application displays prominently a daily budget of calories (i.e., short- term goal) that users are advised to adhere as a means to reach their ultimate weight loss goal (i.e., long-term goal).



Study Objectives

- In light of these innovations in mobile health applications, our research aims to determine whether or not there is indeed a causal relationship between short-term goal accomplishment and long-term success under the context of weight management.

Methods and Results

- We track the daily dynamics of weight loss across a large number of users. The application sets a salient daily budget for calories, and by comparing cases in which the user is slightly under or over-budget, we provide an empirical link between short-term goal achievement and various long-term outcomes.
- We demonstrate using a dynamic regression discontinuity design that the short-term goal achievement effects persist over time
- Finally, estimates from a dynamic structural model of calories management reveal that users receive positive utility from past short-term goal accomplishments, and counter-factual analysis with the estimated model quantify the long-run user benefits of various hypothetical policies that adjust the budget of calories.

Discussion and Conclusion

- Our research uncovers evidence of a causal relationship between short-term and long-term goal achievement under the context of weight loss, and consider how to design short-term goals to help agents achieve long-term goals.
- We show that the long-term success in weight loss from short-term goal achievement may be driven by the impact that these short-term achievements on future short-term achievements.
- We demonstrate via structural estimation of a dynamic model that users receive positive utility from past short-term goal accomplishments, and using the estimated model, our counterfactual analysis reveals that slight increases to the daily budget of calories can benefit users (in the long-run), and that it may be worthwhile making budgets harder for those who have already made progress towards their long-term weight loss goal.
- A managerial implication of our findings is that non-monetary short-term goals can be a useful tool to manage customer relationships well by encouraging customers to keep engaging in the relationships.