Analysis of Recording Habit and Weight Loss Outcome

Yikun Jiang, U3 Honours Economics with major in Mathematics, McGill University
Supervisor: Professor Nathan Yang, Desautels Faculty of Management, McGill University
ARIA Donor: Mr. Harry Samuel

Introduction

- Studies have shown that consistent self-monitoring can aid weight loss progress (Boutelle and Kirschenbaum, 1998; Ingels, Misra, Stewart, Lucke-Wold, and Shawley-Brzoska, 2017). So it could be beneficial if users develop a habit of recording their weight loss progress.
- Furthermore, according to Adriaanse, Kroese, Gillebaart, and De Ridder (2014), forming a good habit can make it effortless and painless to execute self control against temptation. When self control and willpower is low, habit can serve as an aid and enhance goal adherence (Neal, Wood and Drolet, 2013).
- Therefore, it is informative to study the relationship between recording habit and weight loss outcome, thereby measure the benefit to develop a good recording habit during the weight loss process.
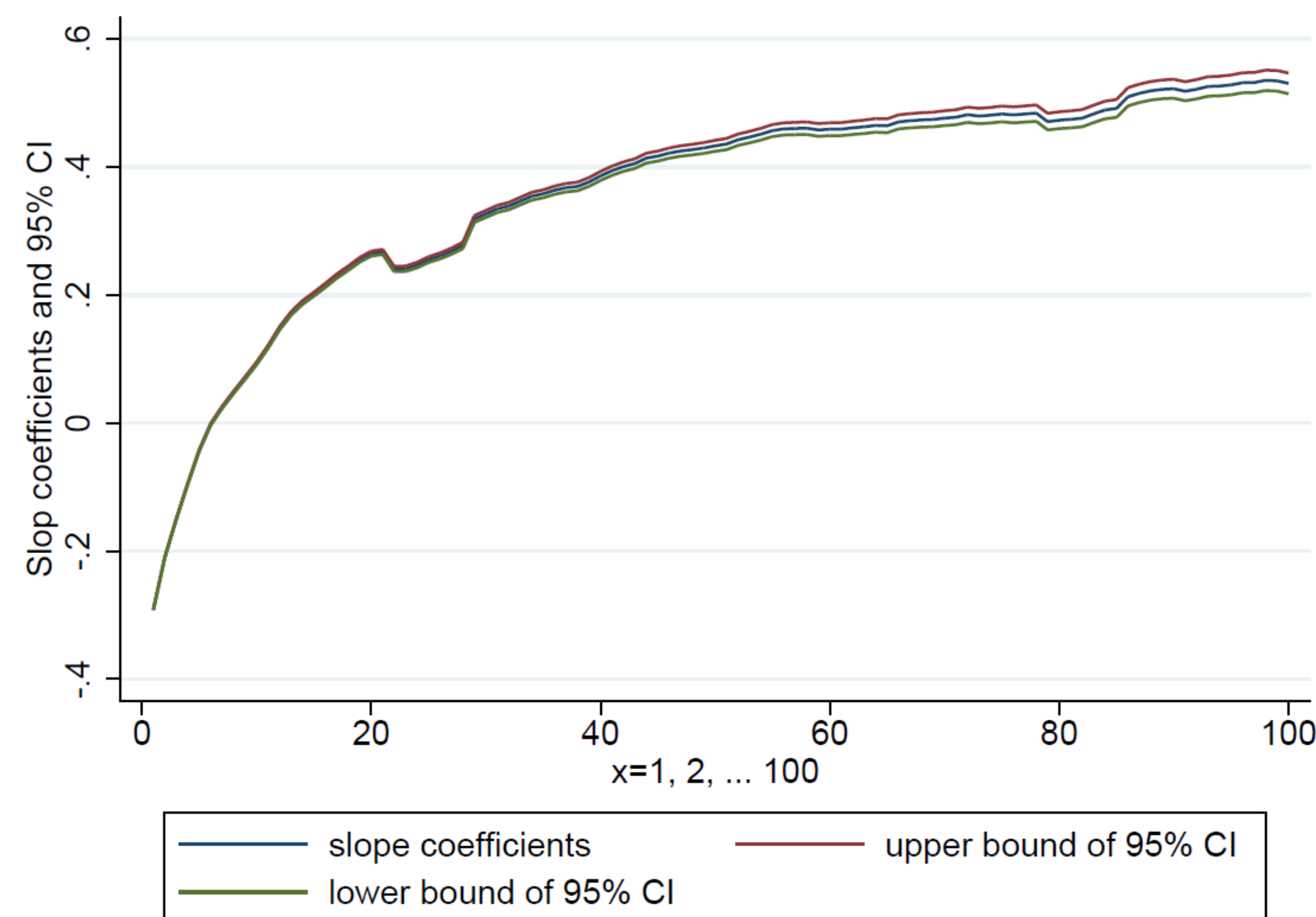
Data

The data is from a large-scale freemium mobile application (Lose It!). The observed variables include the recording time, the type of meals recorded, and measures of daily weight loss performance, such as current weight and calorie intake. More than 40,000 active users were included (Uetake and Yang, 2017).

References:

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Methods and Results

- Method 1: We used a linear model to predict the probability of the user recording in the following day, given the number of consecutive days the user have recorded previously. We predicted recursively for 100 times, and plotted the slope coefficient (probability) with 95% confidence interval of each iteration.
- Result 1: The user's probability of recording in the following day increases with more consecutive days he or she have recorded previously. The increase is the most drastic within the first 20 days of consecutive recording, and began to slow down later on. At around 40th consecutive recording day, one more day of consecutive recording does not increase the probability of further recording significantly.
- Method 2: We computed the percentage of weight change within the first 100 days since each user's first record date. We grouped users by their recording behaviours according to Ingels, Misra, Stewart, Lucke-Wold, and Shawley-Brzoska (2017). The three groups are rare recorders (recorded progress in less than 33% of the days), inconsistent trackers (recorded progress in more than 33% but less than of the days), and consistent trackers (recorded progress in more than 66% of the days). We plotted the distribution graph of weight change percentage, across the three groups.
- Result 2: The graph of rare recorders presents a nearly symmetric distribution around zero, indicating the weight loss effect of this group is ambiguous. The distribution graphs of inconsistent recorders and consistent recorders present a more evident skewness to the left, indicating the weight loss effect of these two groups are stronger. Later on, the results from regression analyses were consistent to the observations above.

Graphs