

Assignment 2

Due for slides (one per group): **May 22 at 11:59 PM**

Presentations (one per group): **May 23 and 25**

Due for evaluation form (one per person): **May 29 at 11:59 PM**

Contents

- The slides may include the following details, but be not limited to,
 - Research Questions
 - Hypotheses in words
 - Data
 - Variables
 - Descriptive Statistics
 - Models
 - Selection and/or Omitted variable biases
 - Results
 - Marketing Implications
 - Conclusion
 - Limitations and Future Research
 - Appendix: R codes

Business Question

“Provide effective strategies for mobile app platform owners and app developers after a popular app has been released on a platform.”

- Based on users' app usage behavior before and after the adoption of a popular app released by a platform

Develop your own research questions!!!

Focal Mobile Platform: Kakao

- Kakao platform's early innovation in 2012
 - **Kako Talk**: Communication
 - **Kakao Story**: Social network
 - **Kakao Game**: Gaming apps



Focal Popular App: Anipang

- One of first released Kakao Game apps (**released on July 30, 2012**)
- Superstar casual gaming app
 - Low barriers to adopt and use (e.g., Bejeweled, Candy Crush Saga)
- On Kakao platform
 - Kakao Talk ID verification is required
 - Game money exchange

→ **Platform-based Social Gaming App**



Data

- “kakao.csv”
- Individual-level weekly panel data of app usage time spent on Android-based mobile devices
 - 849 users ($N = 849$)
 - 2 weeks from July 23 to August 05, 2012 ($T = 2$)
 - Demographic profiles: age, gender, education, and monthly income

Variables

- User, Time, Treatment variables

Variable	Description
panel_id	User ID
week	1: before the release of Anipang (July 23 ~ July 29, 2012) 2: after the release of Anipang (July 30 ~ August 5, 2012)
tg	1: treatment group (Anipang adopters) 0: control group (Anipang non-adopters)
ii	1, if a user adopted Anipang at or before the current week 0, otherwise

Variables (cont.)

- Demographic profiles

Variable	Description	Variable	Description
age	1: 7 ~ 18 2: 19 ~ 29 3: 30 ~ 39 4: 40 ~ 49 5: 50 ~ 69	education	1: Elementary, middle, and high school students 2: High school graduates 3: Undergraduate or graduate students 4: College graduates
Income	1: < \$1,000 2: \$1,000 ~ \$3,000 3: \$3,000 ~ \$5,000 4: > \$5,000	gender	Female Male

Variables (cont.)

- Dependent variables: App usage time variables measured within Kakao platform

Variable	Description
t_kakao_talk	Usage time of Kakao Talk (in seconds)
t_kakao_story	Usage time of Kakao Story (in seconds)
t_kakao_game	Usage time of Kakao Game (excluding Anipang) (in seconds)
t_anipang	Usage time of Anipang (in seconds)

Variables (cont.)

- Dependent variables: App usage time variables measured **outside** Kakao platform

Variable	Description
t_non_kakao_talk	Usage time of communication apps (in seconds)
t_non_kakao_story	Usage time of social networking apps (in seconds)
t_non_kakao_game	Usage time of game apps (in seconds)
t_non_kakao	Usage time of all apps (in seconds)

Methodological Requirements

At least 20 different estimates of Anipang adoption effects on each of app usage time variables

- At least 10 matched samples × 2 estimation methods
- Estimate the effects of Anipang adoption on each of app usage time variables using panel DID models
 - Try both dummy variable regression and FE estimation and confirm that you have the same results
- Obtain the estimation results using at least 10 different matched samples and compare them
 - PSM with different options, for example,
 - one-to-one, two-to-one, or three-to-one
 - with or without replacement
 - 0.05, 0.1, or 0.2 caliper sizes

Submission Guidelines

- Due for the **slides (one per group): May 22 at 11:59 PM CT**
 - Submit the slides for 15- or 20-min. presentation to 'Assignment 2 – Slides Submission' on Canvas
 - 15-min. presentation for a group of 3 members (i.e., 5 min per person)
 - 20-min. presentation for a group of 4 members (i.e., 5 min per person)
- **Presentation (one per group)** at the class time
 - **May 23 and May 25**
- Due for the **evaluation form (one per person): May 29 at 11:59 PM CT**
 - Submit the evaluation forms to 'Assignment 2 – Evaluation Forms Submission' on Canvas