Economic Bubble Game Experiment:

Procedure, Protocol, Program and Performing

No.: \_\_\_\_\_\_\_\_\_\_\_\_\_ Version: \_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_

1. Procedure (Duration = 63.5 min.)
   1. Before main execution (26 min.)
      1. Profile/Pretest (3 min.)
         * As attachment 1.0 and 2.0
      2. Instruction (5 min.)
         * As attachments 3.0
      3. Pilot run (5 min.)
         * Off MRI
         * 20 trials
         * All the same as Stable phase except the rule of price rising in the first 3 trials.
      4. Q&A (3 min.)
      5. Preparation (10 min.)
         * Into MRI
         * Preprocessing acquisition
   2. Main execution (22.5 min.)
      1. Stable phase (15 sec./trial × 30 trial = 450 sec. = 7.5 min.)
      2. Bubble phase (15 sec./trial × 50 trial = 750 sec. = 12.5 min.)
      3. Burst phase (15 sec./trial × 50 trial = 750 sec. = 12.5 min.)
   3. After main execution (15 min.)
      1. Relieving (5 min.)
      2. Post-test (5 min.)
         * As attachment 4.0
      3. Result/Performance announcement (2 min.)
      4. Payment (3 min.)
2. Protocol
   1. Phases
      1. Stable phase
         * 20 trials
         * Beginning with endowments as 3.2
         * Tasks and Decisions as 3.3
         * Price fluctuation as 3.4.1
      2. Bubble phase
         * 50 trials
         * Tasks and Decisions as 3.3
         * Price fluctuation as 3.4.2
      3. Burst phase
         * 50 trials
         * Tasks and Decisions as 3.3
         * Price fluctuation as 3.4.3
   2. Blocks

N/A

* 1. Trials (Duration)
     1. Fixation (2 sec.)
        + Screen as
     2. Consideration with MouseLab (10 sec.)
        + Last trial’s result: stock price in this trial, price fluctuation after last trial’s transactions
        + Count down scale (0 ~ 10 within 13)
        + Player’s Total (asset); Stock (shares) and their value; cash, and Opp. (opponent) Total (asset).
        + MouseLab of opponent’s last three trials’ decisions.
        + Screen as
     3. Decision (3 sec.)
        + 3 decision alternatives as 3.3.2
        + Count down scale (11 ~ 13 within 13)
        + Screen as

1. Experiment rules
   1. Information
      1. Common knowledge
         * Both has the same endowments.
         * Both wealth after each trial.
         * In the first 3 trials, stock prices are rising by default.
      2. Private information
         * Player’s own stock shares; asset value based on spot price, and cash
   2. Endowments
      1. Cash = 10,000
      2. Stock shares = 10
      3. With initial price per share = 100, the initial asset value = 1,000
   3. Tasks & Decisions
      1. Consideration with MouseLab
         * Click MouseLab or not.
         * Information revealed during whole time period of clicking.
      2. Decisions
         * Buy
         * Sell
         * No trade
      3. No decision as no trade
   4. Price fluctuation rules
      1. Stable phase
         * Illustrated as the matrix followed

|  |  |  |  |
| --- | --- | --- | --- |
|  | 買進 | 不買不賣 | 賣出 |
| 買進 | Δ Price = 5% | Δ Price = 3% | Δ Price = 0% |
| 不買不賣 | Δ Price = 3% | Δ Price = 0% | Δ Price = -3% |
| 賣出 | Δ Price = 0% | Δ Price = -3% | Δ Price = -5% |

* + - * In the first 3 trials, stock prices are rising for 3% by default.
    1. Bubble phase
       - Illustrated as the matrix followed

|  |  |  |  |
| --- | --- | --- | --- |
|  | 買進 | 不買不賣 | 賣出 |
| 買進 | Δ Price = 10% | Δ Price = 6% | Δ Price = 0% |
| 不買不賣 | Δ Price = 6% | Δ Price = 0% | Δ Price = -3% |
| 賣出 | Δ Price = 0% | Δ Price = -3% | Δ Price = -5% |

* + 1. Burst phase
       - Illustrated as the matrix followed

|  |  |  |  |
| --- | --- | --- | --- |
|  | 買進 | 不買不賣 | 賣出 |
| 買進 | Δ Price = 5% | Δ Price = 3% | Δ Price = 0% |
| 不買不賣 | Δ Price = 3% | Δ Price = 0% | Δ Price = -6% |
| 賣出 | Δ Price = 0% | Δ Price = -6% | Δ Price = -10% |

* 1. Payment rule

1. Program
   1. User setting design
      1. Time periods (Default value)
         * Fixation time (2 sec.)
         * Consideration time (10 sec.)
         * Decision making time (3 sec.)
      2. Trial quantities (Default value)
         * How many trials in stable phase (20)
         * How many trial in bubble phase (50)
         * How many trial in burst phase (50)
      3. MouseLab information
         * How many historical decisions (3)
   2. Architecture and infrastructure for experiment program
      1. Software
         * Development tool: MATLAB PsychToolBox
         * Operating system: Windows 2016
      2. Hardware
         * Notebook/PC
         * Intranet/Internet
      3. On-line
2. Survey
   1. Profile
   2. Pretest
   3. Post test
3. Brain Imaging parameters
   1. Facilities and Infrastructure for Brain Imaging
      1. MRI
4. Administration