Randomization for BANNER

# Selection of the Final Sample

Our final sample comprises a total of 299 participants.

Initially we had 334 registered participants, but we had to exclude some of them because of various eligibility issues:

* 2 red coders were excluded because already engaged in the private MM
* other 28 were excluded because found without any prior registration to MM or ALGO
* we excluded other 5 who have not completed the registration survey (and were unrated, although they registered once to either MM or ALGO).

# Rooms & Treatments

We split 299 coders into 24 rooms in the following way:

* 12 rooms of 15 coders for a total of 180 coders
* 12 rooms of 10 coders for a total of 120 coders

Each room was then randomly assigned to one of three treatments.

We consider two alternative ways to proceed:

* Complete Randomization
* Randomization tries to minimize the index of dispersion of MM ratings *across* rooms (to better allocate red coders across rooms).

# Outcomes of Complete Randomization

There are many advantages from complete randomization. The main problems occur when distributions very skewed (e.g., we may not want to have 2 red coders in the same room). In our case, the ratings are skewed. See figures.

Macintosh HD:Users:andrea:Dropbox (Harvard-NTL):Banner:Figures:mm.pdf

Macintosh HD:Users:andrea:Dropbox (Harvard-NTL):Banner:Figures:prizes.pdf

Macintosh HD:Users:andrea:Dropbox (Harvard-NTL):Banner:Figures:algo.pdf

Overall however the randomization seems successful across treatments.

See Table and Boxplots.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | **race** | **tournament** | **reserve** |
| **1** | algorating | 1138.73 (78) | 995.42 (67) | 1017.68 (72) |
| **2** | algoevents | 45.47 (5.86) | 29.56 (4.32) | 46.71 (6.78) |
| **3** | algoreg | 51.15 (6.57) | 32.62 (4.74) | 53.34 (7.54) |
| **4** | mmrating | 1361.54 (47.24) | 1290.69 (46.44) | 1311.82 (58) |
| **5** | mmevents | 9.03 (1.29) | 9.50 (1.41) | 12.60 (1.88) |
| **6** | mmreg | 15.74 (2.1) | 15.20 (1.79) | 21.93 (2.83) |
| **7** | totalpayments | 31922.12 (10667.14) | 33935.96 (15924.85) | 93380.51 (32161.23) |

Macintosh HD:Users:andrea:Dropbox (Harvard-NTL):Banner:Figures:box_mm.pdfMacintosh HD:Users:andrea:Dropbox (Harvard-NTL):Banner:Figures:box_prizes.pdfMacintosh HD:Users:andrea:Dropbox (Harvard-NTL):Banner:Figures:box_algo.pdf

# Outcomes of Randomization Minimizing Index of Dispersion Across Rooms

Here I randomly generate 10,000 room configurations and I select the one that minimizes the index of dispersion of MM rating across rooms (i.e., var(x)/mean(x) across rooms).

Overall I don’t find any particular advantage from doing so.

See Table and Boxplots.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | **race** | **tournament** | **reserve** |
| **1** | algorating | 1074.80 (71) | 1034.86 (77) | 1042.97 (71) |
| **2** | algoevents | 40.40 (6.11) | 42.25 (5.43) | 39.19 (5.85) |
| **3** | algoreg | 45.18 (6.68) | 47.10 (6.05) | 44.95 (6.65) |
| **4** | mmrating | 1296.44 (54.58) | 1374.46 (53) | 1300.04 (46.5) |
| **5** | mmevents | 10.11 (1.81) | 9.72 (1.37) | 11.44 (1.5) |
| **6** | mmreg | 17.30 (2.57) | 16.86 (2.22) | 18.73 (2.1) |
| **7** | totalpayments | 96781.28 (38024.7) | 35967.46 (9585.65) | 31826.34 (9188.12) |

Standard Errors in parenthesis

Macintosh HD:Users:andrea:Dropbox (Harvard-NTL):Banner:Figures:box2_mm.pdfMacintosh HD:Users:andrea:Dropbox (Harvard-NTL):Banner:Figures:box2_prizes.pdfMacintosh HD:Users:andrea:Dropbox (Harvard-NTL):Banner:Figures:box2_algo.pdf