# EXPERIMENTAL METHOD

## PROFILES

We identify the profile structures regarding the positions of the FB and MS winners by a four-digit number. The first and second two numbers show the cardinality of the upper counter set of the FB and MS winners, respectively, across the two voters.

Ex: 0324 (a profile at which the FB winner is top-ranked by one voter and 4th-ranked by the other while the MS winner is 3rd- and 5th-ranked respectively by the two voters.)

## EMPLOYED PROFILES IN OUR SURVEY

* **Q1** = 0324

As Q1, we randomly picked one of the profiles Example 1 – Example 30 in section 4.4 of the paper at overleaf.

* **Q2** = 0657

As Q2, we randomly picked one of the profiles Example 31 – Example 60 in section 4.4 of the paper at overleaf.

* **Q3** = 1435 at which the FB winner is one of the Borda winners, i.e., FB(P) ⊂ B(P).

As Q3, we randomly picked one of the profiles Example 61 – Example 90 in section 4.4 of the paper at overleaf.

* **Q4** = 3657 at which the FB winner is also the Borda winner, i.e., FB(P) = B(P).

As Q4, we randomly picked one of the profiles Example 91 – Example 120 in section 4.4 of the paper at overleaf.

* **Q5** = 3657 at which the FB winner is not a Borda winner, i.e., FB(P) ∩ B(P) = ∅.

As Q5, we randomly picked one of the profiles Example 121 – Example 150 in section 4.4 of the paper at overleaf.

* **Q6** = 0324

As Q6, we randomly picked one of the profiles Example 151 – Example 180 in section 4.4 of the paper at overleaf.

## THE SURVEY

6 profiles (Q1-Q6 in random order) + one of the appeared profiles is randomly picked as the 7th profile in a subject’s menu (to test for consistency).

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S. Schwartz Values Survey

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Demographics (gender, undergrad study, parent’s education, etc.)

# OUR DATA:

So far, we have 328 subjects. (We keep the survey link active until the end of July, so the observations might be higher in number.)

Of the 328 subjects, 270 subjects are consistent, i.e., gave the same answers to the repeated profiles in their menus. *(Note: To be frank, this is really a high number, which means that the students were careful about their answers. Amazingly nice!)*

Here are the subjects’ choices:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **Q1** | **Q2** | **Q3** | **Q4** | **Q5** | **Q6** |
| all subjects | **FB** | 255 | 238 | 271 | 273 | 275 | 266 |
| **MS** | 73 | 90 | 57 | 55 | 53 | 62 |
|  |  |  |  |  |  |  |  |
| consistent subjects | **FB** | 223 | 213 | 233 | 233 | 236 | 219 |
| **MS** | 47 | 57 | 37 | 37 | 34 | 51 |

# RESULTS

Below are the significance results for the null hypothesis that *the distribution of the subjects’ choices over FB and MS across the “compared” profiles*. The highlighted results are the statistically significant ones.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | All subjects | | Consistent subjects\* | |
|  | Statistic | P value: | Statistic | p-value |
| **Q1vsQ2** | 51004 | 0.1249 | 35100 | 0.275772 |
| **Q1vsQ3** | 56416 | 0.117432 | 37800 | 0.235701 |
| **Q1vsQ4** | 56744 | 0.076439 | 37800 | 0.235701 |
| **Q1vsQ5** | 57072 | 0.047654 | 38205 | 0.117624 |
| **Q1vsQ6** | 55596 | 0.288588 | 35910 | 0.655751 |
| **Q2vsQ3** | 59204 | 0.00202 | 39150 | 0.023371 |
| **Q2vsQ4** | 59532 | 0.001 | 39150 | 0.023371 |
| **Q2vsQ5** | 59860 | 0.000472 | 39555 | 0.00826 |
| **Q2vsQ6** | 58384 | 0.009632 | 37260 | 0.51925 |
| **Q3vsQ4** | 54120 | 0.835969 | 36450 | 1 |
| **Q3vsQ5** | 54448 | 0.676383 | 36855 | 0.703048 |
| **Q3vsQ6** | 52972 | 0.612926 | 34560 | 0.103253 |
| **Q4vsQ5** | 54120 | 0.833605 | 36855 | 0.703048 |
| **Q4vsQ6** | 52644 | 0.475792 | 34560 | 0.103253 |
| **Q5vsQ6** | 52316 | 0.355933 | 34155 | 0.0448 |
|  |  |  |  |  |

\*Consistent if the subject has chosen same winner in the original profile and the test profile.

## RESULTS regarding the questions we posted (see section 4.1 at the paper)

**1. Does high δ favor MS?**

• Q1=0324 vs Q2= 0657

Result: NO.

**2. Does it matter for the FB winner to be top-ranked by a voter?**

• Q1=0324 vs Q3= 1435 with FB(P) ⊂ B(P)

Result: NO.

**3. Does the best position of the FB winner matter?**

• Q1=0324 vs Q4=3657 with FB(P)= B(P)

Result: YES (overall).

*(Note: For the consistent subjects, the same result does not prevail. However, we will look closer at the repeated profiles of the consistent subjects, which might change the result for the consistent subjects or the power of the result.)*

**4. Does FB(P) = B(P) favor FB?**

* Q4=3657 with FB(P)= B(P) vs Q5=3657 with FB(P) ∩ B(P) = ∅

Result: NO.

**5. Does d(λp(y))=max MS(P) – min MS(P) matter for given δ?**

• Q1=0324 vs Q6= 0627

Result: NO.

**6. Do people select Borda rather than FB or MS?**

• Q3= 1435 with FB(P) ⊂ B(P) vs Q5= 3657 with FB(P) ∩ B(P) = ∅.

Result: NO.

**7. Does showing profiles in favor of MS first favor MS choices in other profiles?**

Not tested yet.

| **Question no** | **Test** | **Statistic** | **p-value** |
| --- | --- | --- | --- |
| **1** | Does high δ favor MS? Q2 vs others | 244360.0 | 0.000149 |
| **1** | Does high δ favor MS? Q2 vs others. CONSISTENT | 171585.0 | 0.017338 |
| **1** | Does high δ favor MS? Q2 vs Borda winner FB others (keep Q5 out) | 196636.0 | 0.000557 |
| **1** | Does high δ favor MS? Q2 vs Borda winner FB others (keep Q5 out). CONSISTENT | 138240.0 | 0.042395 |
| **1** | Does high δ favor MS? Q2 vs nonBorda winner FBs (only Q5)) | 47724.0 | 0.000472 |
| **1** | Does high δ favor MS? Q2 vs nonBorda winner FBs (only Q5)). CONSISTENT | 33345.0 | 0.008260 |
| **2** | FB winner is selected more if NOT top ranked (Q1 Q2 Q6 vs Q3 Q4 Q5) | 454608.0 | 0.000347 |
| **2** | FB winner is selected more if NOT top ranked (Q1 Q2 Q6 vs Q3 Q4 Q5). CONSISTENT | 309015.0 | 0.000774 |
| **3** | Does the best position of the FB winner matter? (Q1 Q2 Q6 choose more MS than Q3 ) | 152520.0 | 0.018111 |
| **3** | Does the best position of the FB winner matter? (Q1 Q2 Q6 choose more MS than Q3 ). CONSISTENT | 103410.0 | 0.021654 |
| **3** | Does the best position of the FB winner matter? (Q1 Q2 Q6 choose more MS than Q4 Q5 ) | 302088.0 | 0.000798 |
| **3** | Does the best position of the FB winner matter? (Q1 Q2 Q6 choose more MS than Q4 Q5 ) CONSISTENT | 205605.0 | 0.001953 |
| **3** | Does the best position of the FB winner matter? (Q3 choose more MS than Q4 Q5 ) | 106600.0 | 0.358801 |
| **3** | Does the best position of the FB winner matter? (Q3 choose more MS than Q4 Q5 ) CONSISTENT | 72495.0 | 0.413380 |
| **7** | Does showing profiles in favor of MS first favor MS choices in other profiles? Q1 | 12596.0 | 0.170919 |
| **7** | Does showing profiles in favor of MS first favor MS choices in other profiles? Q2 | 12594.5 | 0.200996 |
| **7** | Does showing profiles in favor of MS first favor MS choices in other profiles? Q3 | 14195.0 | 0.177866 |
| **7** | Does showing profiles in favor of MS first favor MS choices in other profiles? Q4 | 13255.0 | 0.731699 |
| **7** | Does showing profiles in favor of MS first favor MS choices in other profiles? Q5 | 13417.0 | 0.958478 |
| **7** | Does showing profiles in favor of MS first favor MS choices in other profiles? Q6 | 13526.5 | 0.742530 |

## Consistency

Different definitions of consistency:

| **Consistency Type** | **Rank sum results across gender** | | **#consistent male** | **#consistent female** | **#inconsistent male** | **#inconsistent female** |
| --- | --- | --- | --- | --- | --- | --- |
| **Statistic** | **p-value** |
| Test Question Consistency | 6413.0 | 0.011967 | 128 | 142 | 17 | 41 |
| Extreme Consistency (choosing only FB or MS) | 11119.0 | 0.003415 | 94 | 89 | 51 | 94 |
| Mild Consistency (choosing FB or MS at min 5/6 questions) | 8876.0 | 0.100009 | 116 | 132 | 29 | 51 |
| Full Consistency (always choosing FB) | 11026.0 | 0.001246 | 91 | 82 | 54 | 101 |

Conclusion: Males are observed to be significantly more consistent for all consistency definitions.

## Schwarz

Universalism and Stimulation values are significantly higher among the ones who choose MS in at least 1 profile (compared to the ones who choose FB at all profiles) 🡪 0.10 significance level

Achievement\*\* and Power\* values are significanlty higher among the ones who chose FB at all profiles.

No significant effect is observed at Negative Binomial Regresison of Schwarz values on the number of profiles where FB is selected.

Logit regression results, dependent variable = 1 if FB is selected in all profiles:

Optimization terminated successfully.

Current function value: 0.638208

Iterations 5

Logit Regression Results

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Dep. Variable: onlyFB No. Observations: 270

Model: Logit Df Residuals: 260

Method: MLE Df Model: 9

Date: Thu, 03 Aug 2023 Pseudo R-squ.: 0.03734

Time: 20:57:50 Log-Likelihood: -172.32

converged: True LL-Null: -179.00

Covariance Type: nonrobust LLR p-value: 0.1466

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coef std err z P>|z| [0.025 0.975]

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comformity\_n -0.1961 0.666 -0.294 0.769 -1.502 1.110

tradition\_n -0.1116 0.593 -0.188 0.851 -1.274 1.051

benevolence\_n 0.6805 0.827 0.823 0.411 -0.941 2.302

universalism\_n -1.1930 0.668 -1.785 0.074 -2.503 0.117

self\_direction\_n 0.4341 0.844 0.514 0.607 -1.220 2.089

stimulation\_n -1.4565 0.800 -1.820 0.069 -3.025 0.112

hedonism\_n 0.2452 0.739 0.332 0.740 -1.202 1.693

achievement\_n 1.4638 0.737 1.987 0.047 0.020 2.907

power\_n 0.4331 0.597 0.725 0.468 -0.737 1.604

security\_n -0.0466 0.589 -0.079 0.937 -1.201 1.108

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