**Statistical Design Consulting**

**SEMESTER REPORT**

**Summer 2024**

**Client:** Hanna Sistek **File Number:** 23-056

**Department:** Political Science **Major Prof:** Dr. Cherie Maestras

**Consultant:** Sumeeth Guda **Follow Up Date:** 01/23/24

**Meeting Attendees:** Hanna Sistek, Youha Shin, Dr. Chong Gu

**Statement of Problem:** To test a reputational cost theory of disinformation dissemination by political elites

**Goal of This Project:** PhD Dissertation, Journal Publication

**Background:** Disinformation dissemination impacts party reputation and that can influence reelection chances. Recent societal developments and the advent of social media and networked communication has altered its reputational cost and lowered the bar of its spread. The client developed a reputational cost theory of disinformation dissemination and wants to use regression to test it. Specifically, the client wants to test hypotheses such as “do countries with high political polarization and media fractionalization incentivize politicians to use disinformation?”.

It was noted early in the follow-up meeting that the client’s questions pertained to a separate project involving a survey experiment. The client has faced challenges conducting the power analysis, as moderating variables were included, and the client wished to gain greater clarity on whether a moderation or mediation analysis would be required. After using a tool called G\* Power (from Humboldt University) to calculate the sample size, the client expressed confusion by the results, which seemed far too low than what would be required in reality (results showed ~400 participants total).

**Progress During Current Semester:**

At the vary beginning of the semester, the client had issues using the plm() function in R with regards to understanding why the panel model was dropping some of the predictors which had random effects, and only keeping the fixed effects. Because some of the dropped predictors were necessary in building her longitudinal data model. After conversing with the SCS professors, they did not understand why the client was using panel regression since it wasn’t mentioned in either the IM or follow up meetings. Throughout this semester, the SCS staff and the consultant went back and forth with the client to determine exactly what their new analysis approach was going to be: Understanding the data, packages used, why they used plm models, etc. This ultimately led to a bigger problem with the statistical analysis in that the structure of the client’s data and the way it was collected might not match the model the client selected. Hence it was suggested that another follow-up meeting be set up to get to the bottom of what the client is trying to do and wrap up the client’s project. Since the follow up meeting can only be set up in the fall semester, ultimately the temporary patch that Dr. Bruce Craig recommended to Hanna was that she use a lmer() mixed effect model and analyze and group the slopes of each country factor.

**Current Status: Continuing**