Analysis Plan

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I plan to analyze data at the group level. Following **?**, I will use bootstrapping to perform significance testing. For each iteration, I will perform the following procedure. Let $F_i^{QV,clean}$ be the number of times the audit received a negative number of net votes under Quadratic Voting in the corruption game during the first 20 rounds in group i when the official was clean, $T_i^{QV,\text{clean}}$ be the number of times auditing received 0 net votes under Quadratic Voting in the corruption game during the first 20 rounds in group i when the official was clean, $T_i^{QV,\text{corrupt}}$ be the number of times auditing received 0 net votes under Quadratic Voting in the corruption game during the first 20 rounds in group i when the official was corrupt, and $P_i^{QV,c}$ be the number of times the audit received positive net votes under Quadratic Voting in the corruption game during the first 20 rounds in group i. I define $W_i^{QV,c}$, the total expected payoff under Quadratic Voting in the corruption game during the first 20 rounds in group i, by $W_i^{QV,c} = -10F_i^{QV,\text{corrupt}} - 8T_i^{QV,\text{corrupt}} - 3T_i^{QV,\text{clean}} - 6P_i^{QV,c}$. Let $W_i^{MV,c}$ denote the total payoff under majority voting in the corruption game during the first 20 rounds in group i. I start A and B off as empty sets and for each i from 1 to 4, I add i to A with 50% probability and add i to B with 50% probability. I then compute $\sum_{i\in A} W_i^{MV,c} + \sum_{i\in B} W_i^{QV,c} - \left(\sum_{i\in A} W_i^{MV,c} + \sum_{i\in B} W_i^{QV,c}\right)$. I will use the sample probability that $\sum_{i\in A} W_i^{MV,c} + \sum_{i\in B} W_i^{QV,c} - \left(\sum_{i\in A} W_i^{MV,c} + \sum_{i\in B} W_i^{QV,c}\right) \geq W_i^{MV,c} - W_i^{QV,c}$ as my p-value. Let $F_i^{QV,p}$ be the number of times the proposal received a negative number of net votes under Quadratic Voting in the pollution game during the first 20 rounds in group i, $T_i^{QV,\text{high}}$ be the number of times auditing received 0 net votes under Quadratic Voting in the pollution game during the first 20 rounds in group i when the owner faced a high cost, $T_i^{QV,\text{low}}$ be the number of times auditing received 0 net votes under Quadratic Voting in the pollution game during the first 20 rounds in group i when the owner faced a low cost, $P_i^{QV,\text{high}}$ be the number of times the audit received positive net votes under Quadratic Voting in the pollution game during the first 20 rounds in group i when the owner faced a high cost, and $P_i^{QV,\text{low}}$ be the number of times the audit received positive net votes under Quadratic Voting in the pollution game during the first 20 rounds in group i when the owner faced a low cost. I define $W_i^{QV,p}$, the total expected payoff under Quadratic Voting in the pollution game during the first 20 rounds in group i, by $W_i^{QV,p} = -4F_i^{QV,c} - 3T_i^{QV,\text{low}} - 6T^{QV,\text{high}} - 2T_i^{QV,\text{low}} - 8T^{QV,\text{high}}$. Let $W_i^{MV,c}$ denote the total payoff under majority voting in the pollution game during the first 20 rounds in group i. I start A and B off as empty sets and for each i from 1 to 14, I add i to A with 50% probability and add i to B with 50% probability. I then

compute $\sum_{i\in A} W_i^{MV,p} + \sum_{i\in B} W_i^{QV,p} - \left(\sum_{i\in A} W_i^{MV,p} + \sum_{i\in B} W_i^{QV,p}\right)$. I generate 10,000 bootstrapped samples. I will use the sample probability that $\sum_{i\in A} W_i^{MV,p} + \sum_{i\in B} W_i^{QV,c} - \left(\sum_{i\in A} W_i^{MV,p} + \sum_{i\in B} W_i^{QV,c}\right) \geq W_i^{QV,p} - W_i^{MV,p}$ as my p-value. I will generate 10,000 bootstrapped samples. I will limit the probability of committing a type I error in either of my payoff hypotheses to 0.05 by testing both at the 0.025 level.

I will run binomial tests to test whether groups are more likely to choose majority voting in the corruption treatment and QV in the pollution treatment.