SDS 323 Final Report: A Statistical Analysis of Vote-Buying in Mexico's 2006 Elections

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Abstract

During Mexico's elections, it is common for citizens across the country to be showered with gifts, money, or other bribes in exchange for the chance to have their votes be bought by political parties. Although this vote-buying occurs regularly, it is not completely known if this action has a clear effect on the voters. Does a vote-buying offer change a voter's attitudes and behaviors? In this report, I use survey data from 2006 to first examine what effects a vote-buying attempt has on Mexican citizen's perception of political parties, the cleanliness of the elections, Mexico's democracy, and election result protests. I then attempt to discover potential demographic variables that can predict who is more likely to receive a vote-buying offer. These examinations of effects were conducted through the form of logistic regression and linear regression models. The models I created were able to find that vote-buying offers do have a significant effect on a citizen's perception of how clean elections are and their willingness to support an election-result protest. The models also revealed that age and type of community in which the respondent resides were significant factors in predicting who is more likely to receive a vote-buying offer.

Introduction

The Problem

On July 2, 2006, hundreds of thousands of Mexican citizens took to the streets to protest the recent results of the country's presidential election ("Nearly 1 Million Protest," 2006). Election winner, Felipe Calderon of the National Action Party (PAN), won by a narrow margin of approximately 204,000 votes ("Nearly 1 Million Protest," 2006). This narrow win was widely contested by many citizens and runner-up Andres Manuel Lopez Obrador of the Democratic Revolution Party (PRD) ("Nearly 1 Million Protest," 2006). Lopez Obrador demanded a recount of the votes, stating that there was abuse in the election process ("Mexican Citizens Massively Protest," 2006). However, mass protests and claims of corruption in presidential elections such as this are not unknown to Mexico ("Opposition Wins Mexico Election," 2000). With the potential exception of the 2000 presidential election, known as the fairest election held by Mexico in which Vicente Fox (PAN) disrupted the 71-year reign of the Institutional Revolutionary Party (PRI), most election results are met with opposition from many who believe the election process is plagued with corruption, such as vote-buying ("Opposition Wins Mexico Election," 2000). Although vote-buying occurs regularly, it is difficult to discover if the voters who were offered gifts in exchange for their vote actually complied. However, it is more feasible to see if the offer of vote-buying affects the attitudes of voters. If a voter receives an offer, does their perspective of their government change? Do their attitudes shift towards believing that their government is not a true democracy, or do they not change at all? I will attempt to see if vote-buying attempts have an effect on the following items:

- Citizens' opinions of political parties (PRI, PAN, and PRD)
- Citizen's perceptions of how clean the 2006 elections are
- Whether Mexican citizens view Mexico as a democracy
- Whether citizens are more likely to support protests of election results

Additionally, I will also explore the possibilities of other information that can help predict who is more likely

to receive a vote-buying offer.

The Prediction

Since vote-buying is illegal in Mexico, it is my prediction that citizens who experienced a vote-buying offer will have deteriorating views of the government since the act demonstrates government parties partaking in corrupt activities. Although some citizens might appreciate the act of being offered gifts, their attitudes towards the government might still reflect that vote-buying is a dishonest act. This leads me to expect citizens' opinions of a political party that offered them a bribe in exchange for their vote to worsen. I also believe that vote-buying attempts will lead citizens to perceive the 2006 elections as less clean, view Mexico not as a democracy, and support protests of the election results. Additionally, I predict to see older, lower-income citizens to have a strong relationship with receiving a vote-buying offer.

The Conclusion

Through creating statistical models, I was able to discover a significant relationship for only two of the items listed above: a citizen's perception of how clean the 2006 elections are and whether citizens are more likely to support protests of election results. Vote-buying had a negative relationship with the perception of how clean elections are, suggesting that citizens who had received a vote-buying attempt viewed the elections as less clean. Contrarily, vote-buying had a positive relationship with supporting protests, suggesting that citizens who had received a vote-buying attempt were more likely to support a protest opposing the 2006 election results. Besides these two discoveries, however, other models created did not indicate that vote-buying attempts had a significant relationship with any of the other items listed above. On the other hand, I was able to discover that there is a significant relationship between the age of a respondent and the type of community they live in and the likelihood that they would receive a vote-buying offer.

Methods

The Data

To approach the problem, I looked at a panel dataset that was compiled through three waves of surveys on the same respondents. The surveys were conducted in 2006, before and after the Mexican presidential election. Respondents were asked questions that collected information about their demographic makeup (age, sex, income, education, etc.), their attitudes towards government entities (presidential candidates, political parties, etc.), and if they had experienced a vote-buying attempt by political entities. The surveys were conducted in a manner that required a substantial amount of recoding to improve the interpretability of the data. For example, one of the survey questions asked respondents to rate the honesty of a candidate with a score of 1 signifying "very honest" and a score of 4 signifying "not at all honest." In another question, a higher score corresponded to a higher level of education. Since there seemed to be an inconsistency with the scoring system, I recoded all the data necessary to increase the score as the variable of interest (honesty, education, etc.) increased.

Next, I recoded certain dummy variables that were initially recorded as numerical. For example, one of the survey questions asked respondents the reason they voted for a certain candidate and provided 10 options to choose from. The responses were then recorded on a numerical scale of 1-10. I recoded the variables to instead have 10 categories that would give more insight into different reasons for voting for a certain candidate. Additionally, since the main variable I would be analyzing is vote-buying offers, I created a binary variable that recorded a "1" as a respondent who had received an offer from any of the parties, and a "0" as a respondent who had not received any offers at all. A similar process was conducted to record binomial variables of respondents who did or did not receive an offer from each of the parties, PAN, PRI, and PRD. Recoding the data in these types of situations was a lengthy task, but ultimately provided more consistency and interpretability in the data and future models.

The Process

Before creating models to explain what effects vote-buying might have on certain behaviors, I wanted to look at a few descriptive summaries of the data. I began by combining candidate variables with their corresponding parties. Since each of the candidates of interest (Calderon, Lopez Obrador, and Madrazo) corresponded to a party, candidate variables were combined with party variables to have more information

to convey than if they were treated as separate variables. From this action, I was able to find and graph the percentages of each party that gave gifts to citizens shown in Figure A.1. in Appendix A.

From this graph, it can be seen that the PRI party is the party that partakes in offering bribes for votes the most. This leads me to expand my initial prediction of vote-buying would lead to worse opinions of political parties. Based on this graph, I now predict that the PRI party will have the strongest negative relationship out of all the parties between party opinion and vote-buying.

After gathering information about the data through summary statistics, I decided to use linear regression and logistic regression models as the methods to find insights from the data. I used linear regression to explore what effects a vote-buying offer might have on behaviors and attitudes that were recorded in an interval scale and logistic regression for behaviors and attitudes recorded in a binomial manner. Using linear regression models, I sought to discover if a vote-buying offer (VBO) affected Mexican's perceptions of:

- Political parties (PRI, PAN, and PRD)
- How clean the 2006 elections are

Using multiple logistic regression, I sought to discover if a vote-buying offer had an effect on:

- Whether Mexican citizens view Mexico as a democracy
- Whether citizens are more likely to support protests of election results

In all cases above, vote-buying would serve as one of the explanatory variables in the model for each of these response variables, measured at Wave 3. Additionally, I also used logistic regression to see if certain demographics could explain what increases the likelihood of someone receiving a vote-buying offer.

Results

To begin, I wanted to see what effect, if any, a VBO had on a respondent's opinions of different political parties. First, I constructed models with the opinions of the PAN party as the dependent variable. When I used the VBO variable as the independent variable, I was able to find that there was no significant p-value or strong R^2 to suggest that these variables have a conclusive relationship to each other. I also ran the opinions of the PAN party with the variable that accounted for those who received a VBO from the PAN party specifically. However, this also produced an insignificant p-value and a low R^2. Since the variables that captured vote-buying attempts did not produce enough evidence to reject the null hypothesis, I turned to other variables that could potentially do so. What I found was that the model in Table 1 was able to receive a relatively high R^2 of 0.5426 and significant p-values for nearly all variables. This suggests that those variables selected help to explain 54.26% of the change in respondents' opinions of the PAN party. With this model, the null hypothesis can be rejected, effectively stating the presence of a meaningful relationship between the independent variables and the opinions of the PAN party. However, it is worth noting that the inclusion of past opinions of the PAN party can serve as a way to statistically control for these variables but does provide groundbreaking revelations given that a positive relationship between these variables is expected.

```
Call:
lm(formula = opin_PAN_3 ~ opin_PAN_2 + opin_PAN + age + opin_PRI_3 +
    party_align_3, data = data)

Residuals:
    Min      1Q  Median      3Q     Max
-8.4249 -0.9873  0.1289  1.2310  7.0388

Coefficients:
                   Estimate Std. Error t value Pr(>|t|)
(Intercept)        1.307214   0.270321   4.836 1.52e-06 ***
opin_PAN_2         0.428709   0.027071  15.836  < 2e-16 ***
opin_PAN           0.116172   0.025200   4.610 4.50e-06 ***
```

```
age                 0.009553   0.004141   2.307   0.0212 *
opin_PRI_3          0.272763   0.025585  10.661  < 2e-16 ***
party_align_3other  0.391114   1.433887   0.273   0.7851
party_align_3PAN    1.157268   0.172176   6.721 2.89e-11 ***
party_align_3PRD   -0.898497   0.167244  -5.372 9.49e-08 ***
party_align_3PRI   -0.465703   0.208828  -2.230   0.0259 *
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 2.021 on 1093 degrees of freedom
  (1298 observations deleted due to missingness)
Multiple R-squared:  0.546, Adjusted R-squared:  0.5426
F-statistic: 164.3 on 8 and 1093 DF,  p-value: < 2.2e-16
```

I repeated this process with the opinions of the PRI as the dependent variable and a VBO attempt as the independent variable. The results were similar to the models that contained the opinions of the PAN party as the dependent variable. The variables that captured vote-buying attempts (all party attempts and PRI party-specific attempts) were insufficient to provide meaningful p-values or high R^2 and reject the null hypothesis. However, further exploration was able to produce the model in Table 2, which contains an R^2 of 0.5166 and variables with significant p-values. These variables can explain 51.66% of the change in a respondent's opinion of the PRI party. From the coefficients, it is inferred that positive opinions of the PRI party from previous waves, the PAN party, and the PRD party along with a party alignment of PRI correspond to positive opinions of the PRI party in Wave 3. The past opinions of the PRI party do not provide new information as the existence of a significant relationship is expected. Yet the other coefficients give insight into how the positive opinions of other parties plays a role on the opinion of the PRI party. On the other hand, party alignment with PAN, PRD, or other parties not listed corresponds to a negative opinion of the PRI party.

```
Call:
lm(formula = opin_PRI_3 ~ opin_PRI_2 + opin_PRI + party_align_3 +
    opin_PAN_3 + opin_PRD_3, data = data)

Residuals:
    Min      1Q  Median      3Q     Max
-7.4239 -1.1408  0.0732  1.2770  7.1607

Coefficients:
                   Estimate Std. Error t value Pr(>|t|)
(Intercept)         0.31766    0.22095   1.438 0.150802
opin_PRI_2          0.27879    0.02487  11.209  < 2e-16 ***
opin_PRI            0.18018    0.02277   7.913 6.12e-15 ***
party_align_3other -0.64911    1.40929  -0.461 0.645182
party_align_3PAN   -0.17493    0.17421  -1.004 0.315521
party_align_3PRD   -0.54172    0.17888  -3.028 0.002516 **
party_align_3PRI    1.80145    0.20061   8.980  < 2e-16 ***
opin_PAN_3          0.21836    0.02418   9.030  < 2e-16 ***
opin_PRD_3          0.08746    0.02322   3.767 0.000174 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 1.983 on 1098 degrees of freedom
  (1293 observations deleted due to missingness)
Multiple R-squared:  0.5201,    Adjusted R-squared:  0.5166
F-statistic: 148.7 on 8 and 1098 DF,  p-value: < 2.2e-16
```

Continuing with the PRD party, there was not enough evidence to say that vote-buying attempts had an effect on the opinions of the PRD party. However, the model in Table 3 was created to show variables that did have an effect on the opinions of the PRD party. The variables have significant p-values and an R^2 that states the variables can explain approximately 43.95% of the change in opinions of the PRD party. Past opinions of the PRD party, opinions of the PRI party, and being a male have positive coefficients. Although it is expected that past opinions of the PRD party would have a positive relationship with a future opinion of the party, it is more revealing that a positive relationship exists between opinions of the PRD party and being a male and/or opinions of the PRI party. This suggests that positive opinions for the PRI party and being a male corresponds to having a higher opinion of the PRD party. On the other hand, opinions of the PAN party and income contained negative coefficients. This suggests that positive opinions of the PAN party and having a higher income will lead to more negative opinions of the PRD party.

```
Call:
lm(formula = opin_PRD_3 ~ opin_PRD_2 + opin_PRD + sex + opin_PAN_3 +
    opin_PRI_3 + income_3, data = data)

Residuals:
     Min       1Q   Median       3Q      Max
-10.0474  -1.3094   0.2764   1.3780   8.7311

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept)  1.98824    0.30872   6.440 1.83e-10 ***
opin_PRD_2   0.49729    0.02894  17.182  < 2e-16 ***
opin_PRD     0.22946    0.02868   8.001 3.35e-15 ***
sexmale      0.37048    0.14704   2.520 0.011900 *
opin_PAN_3  -0.15111    0.02660  -5.680 1.76e-08 ***
opin_PRI_3   0.10239    0.02741   3.736 0.000197 ***
income_3    -0.05804    0.02607  -2.226 0.026200 *
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 2.306 on 1018 degrees of freedom
  (1375 observations deleted due to missingness)
Multiple R-squared:  0.4427,    Adjusted R-squared:  0.4395
F-statistic: 134.8 on 6 and 1018 DF,  p-value: < 2.2e-16
```

After exploring the effects between party opinion and vote-buying attempts, I created linear models with the perception of how clean Mexico's 2006 elections are as the dependent variable. I was able to find that the vote-buying offer variable did have an effect as an independent variable with a significant p-value on an alpha level of 0.05. In all models, VBO had a negative relationship with the perception of how clean elections are. This means that citizens who received a VBO are more likely to believe that Mexico's 2006 elections are not clean. However, this discovery should be taken cautiously as the simple linear regression model that had VBO as the sole predictor, only had an R^2 of 0.003. This shows that although the VBO variable had a significant p-value pointing towards a negative effect on the dependent variable, it only helps explain a very small percentage of what makes a citizen believe elections are clean. Because of this, I searched for significant variables that could be included in a model that has a greater R^2. I was able to create the model in Table 4, which produced an R^2 of 0.2707, meaning that approximately 27.07% of the dependent variable can be explained through the selected variables. All but two of the variables in this model, the vote-buying attempt and whether protests should continue, had positive coefficients. This implies that believing that it is important to live in a democracy, believing that the elections are just, and positive ratings of the economic and political states of Mexico will lead to a respondent believing that the elections are clean. It also implies that a respondent who has received a vote-buying offer or believes that protests should continue is more likely to believe that the elections are not clean. From the results of this model, it is shown that all of these

variables affect a respondent's perception of how clean the elections are, but only to a relatively low degree. The R^2 suggests that although these variables can help explain about 27% of the dependent variable, there is still about 73% that is explained by unknown factors.

```
Call:
lm(formula = clean_elections_3 ~ gift_all + important_live_demo_3 +
    protests_continue_stop_3 + rate_economic_situation_3 + rate_political_situation_3 +
    elections_just_3, data = data)

Residuals:
    Min      1Q  Median      3Q     Max
-2.3125 -0.4139  0.0505  0.5248  2.0047

Coefficients:
                           Estimate Std. Error t value Pr(>|t|)
(Intercept)                 0.33540    0.13396   2.504   0.0125 *
gift_all                   -0.20830    0.09795  -2.127   0.0338 *
important_live_demo_3       0.18412    0.04629   3.977 7.70e-05 ***
protests_continue_stop_3   -0.47746    0.09831  -4.857 1.48e-06 ***
rate_economic_situation_3   0.17575    0.04173   4.212 2.87e-05 ***
rate_political_situation_3  0.22132    0.04038   5.482 5.90e-08 ***
elections_just_3            0.29017    0.04584   6.330 4.40e-10 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.739 on 694 degrees of freedom
  (1699 observations deleted due to missingness)
Multiple R-squared:  0.2769,    Adjusted R-squared:  0.2707
F-statistic:  44.3 on 6 and 694 DF,  p-value: < 2.2e-16
```

After creating those linear models, I attempted to find a link between vote-buying offers and binomial variables, such as the belief that Mexico is a democracy. After creating a logistic regression model for these variables, it was clear that vote-buying offers did not have a significant effect on whether a Mexican citizen believed Mexico was a democracy or not. In multiple attempts to model vote-buying offers as an explanatory variable with other variables in the data, vote-buying offers always resulted in a high, insignificant p-value. However, I pressed forward to find a model that does have significant variables to explain what has an effect on the belief of Mexico being a democracy. This model, displayed in Table 5, showed that a positive increase in any of these predictor variables increased the likelihood of the respondent to believe that Mexico is a democracy. After conducting a log-likelihood ratio test, I discovered a p-value of zero, which corroborates that these variables do add significant value to predicting whether citizens believe Mexico is a democracy or not.

```
Call:
glm(formula = mx_demo_3 ~ clean_elections_3 + rate_economic_situation_3 +
    rate_political_situation_3 + join_protest_2, family = binomial,
    data = data)

Deviance Residuals:
    Min       1Q   Median       3Q      Max
-2.3826  -0.7959   0.4568   0.8081   2.3522

Coefficients:
                           Estimate Std. Error z value Pr(>|z|)
```

```
(Intercept)                 -2.7014     0.2555 -10.575  < 2e-16 ***
clean_elections_3            0.7927     0.0808   9.810  < 2e-16 ***
rate_economic_situation_3    0.4584     0.1077   4.256 2.08e-05 ***
rate_political_situation_3   0.5754     0.1077   5.344 9.08e-08 ***
join_protest_2               0.6804     0.1591   4.278 1.89e-05 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for binomial family taken to be 1)

    Null deviance: 1481.6  on 1161  degrees of freedom
Residual deviance: 1160.2  on 1157  degrees of freedom
  (1238 observations deleted due to missingness)
AIC: 1170.2

Number of Fisher Scoring iterations: 4
```

```
#Log-Likelihood Test
G <- 1481.6 - 1160.2
1 - pchisq(G, 3)
```

```
[1] 0
```

In addition to exploring which variables VBO's might have an effect on, I also wanted to see if certain variables could increase the likelihood of someone receiving a VBO. I used logistic regression with VBO as my dependent, binomial variable and created different models consisting of different independent variables. From what I was able to find, most variables did not serve as good explanations of what could increase or decrease the likelihood of someone receiving a VBO. Only a few variables produced a small enough p-value that suggested they do have an effect on receiving a VBO. These variables, shown in Table 8, were the age of the respondent and the type of community in which the respondent resided (urban, rural, or mixed). Age had a positive coefficient, suggesting that an older citizen is more likely to receive a VBO. Additionally, the coefficient for the urban community dummy variable was the highest, suggesting that citizens who lived in urban communities were more likely to receive a VBO than those who lived in rural or mixed communities. I continued to conduct a log-likelihood ratio test and, given the significant p-value, was able to deduce that these variables collectively do add significant value to predicting characteristics of someone who would receive a vote-buying offer.

```
Call:
glm(formula = gift_all ~ age + urban_rural, family = binomial,
    data = data)

Deviance Residuals:
    Min       1Q   Median       3Q      Max
-0.5708  -0.4393  -0.4020  -0.3269   2.8576

Coefficients:
                 Estimate Std. Error z value Pr(>|z|)
(Intercept)     -4.590610   0.751118  -6.112 9.86e-10 ***
age              0.010929   0.005298   2.063   0.0391 *
urban_ruralrural 1.305782   0.738992   1.767   0.0772 .
urban_ruralurban 1.853075   0.720101   2.573   0.0101 *
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for binomial family taken to be 1)
```

```
    Null deviance: 964.05  on 1768  degrees of freedom
Residual deviance: 943.67  on 1765  degrees of freedom
  (631 observations deleted due to missingness)
AIC: 951.67

Number of Fisher Scoring iterations: 6
```

```
#Log-Likelihood Ratio Test
G <- 964.05-943.67
1-pchisq(G, 2)
```

```
[1] 3.754389e-05
```

Conclusion

From the results found, there is a mix of evidence to support and oppose my initial predictions. Vote-buying does have a significant, negative effect on a respondent's perception of how clean elections are. There are also a few demographics, age and type of community, that can help predict the likelihood of a person to receive a vote-buying offer. However, there was an absence of a significant relationship between vote-buying and any of the other variables I considered.

For the initial models that explored the effects of vote-buying attempts on the opinions of political parties, there was not enough evidence to suggest a significant effect. This may be due to a lack of substantial data needed to find these effects. From the survey data of 2,400 respondents, there were only 137 unique respondents who stated they received a vote-buying attempt. An even smaller number was recorded for each of the variables that recorded vote-buying attempts by political party. This small amount of data is the first possibility as to why a relationship between vote-buying attempts and opinions of political parties could not be captured. Another possibility is that there is no real relationship between these variables. This possibility, however, would not be able to be confirmed or denied without the collection of sufficient data and supportive evidence. Additionally, all of the models that were created to explain some of the variance in the opinions of political parties had previous opinions of the selected party as explanatory variables. It is expected that the previous opinions of a party would have a significant effect on the future opinion of a party. However, it was surprising to see that many opinions of parties positively related to opinions of other parties. This may be due to an overlapping of ideals shared by some of the parties.

The model that considered a relationship between vote-buying attempts and how clean respondents believe the elections to be showed the presence of a significant effect. The result supports my initial hypothesis that a vote-buying attempt would negatively affect the perception of how clean elections are. This may be due to the belief that, regardless if the vote-buying attempt was successful or not, the respondent understands that the act is one that erodes the cleanliness of an election.

After obtaining the results for the vote-buying attempt effects on how clean respondents believe elections to be, I expected to see similar results for the variable that captured a respondent's belief of Mexico being a democracy or not. I believed that since vote-buying offers can be seen as an act that undermines democracy, these two variables would have a significant, negative relationship. Unfortunately, I did not find a significant effect. This may be due to, once again, a lack of sufficient data or a disconnect that the respondents may have of negatively associating vote-buying offers with democracy.

Finally, I set out to find if there were certain demographics or characteristics of Mexican citizens that could help predict who is more likely to receive a vote-buying offer. I predicted age to be a correct variable, but I was surprised that the type of community in which a respondent lives can also help be a predictive variable. Older citizens and citizens who live in urban communities are more likely to experience a vote-buying attempt than citizens not matching these features. This may be due to voting age requirements and the greater population of citizens living in urban communities. Another surprise was that income was not a variable that could significantly affect who receives a vote-buying offer. I believed this would be the case as lower-income citizens might be targeted to receive vote-buying offers, but there was insufficient evidence to support this. It is worth mentioning that although I was able to find a significant effect of age and type of

community on vote-buying attempts as a dependent variable, these variables will only serve as associations. Since this data is observational in nature, it cannot be said that, for example, being older and living in an urban community will cause someone to receive a VBO. A causal relationship would not be able to be identified unless an experiment was conducted that randomly assigned the potential confounding variables, such as age and community in which one lives, and discovering who receives a VBO. However, since this is improbable, the best that can be done is to statistically control for these variables by including them as predictor variables for each of the models. This was attempted as I created many models that controlled for variables such as age, type of community, and other potential confounding variables for each new dependent variable. However, models that included these potentially confounding variables produced results that were insignificant, meaning that there is less reason to believe that they affect the dependent variable or help explain the variance of the dependent variable.

Additionally, for each of the models that I created to find effects linked to vote-buying, I ran into a common dilemma: insufficient data. What began as a set of 2,400 observations, would result in less than a hundred observations used in models due to missing data. Moreover, certain methods that I tried, such as stepwise regression or subsetting the data to only include observations that had vote-buying attempts, would simply not run due to too many "NA's." There was evidence found in a few of the models that linked to vote-buying, but there is reason to believe that had there been fewer missing data, the possibility of finding more significant effects and stronger relationships would have increased. To increase the strength of the evidence found in my models, more data should be collected that overcomes the setback of having a dataset with a substantial amount of missing data.

Appendix

Appendix A: Percentage of Gifts Offered by Party

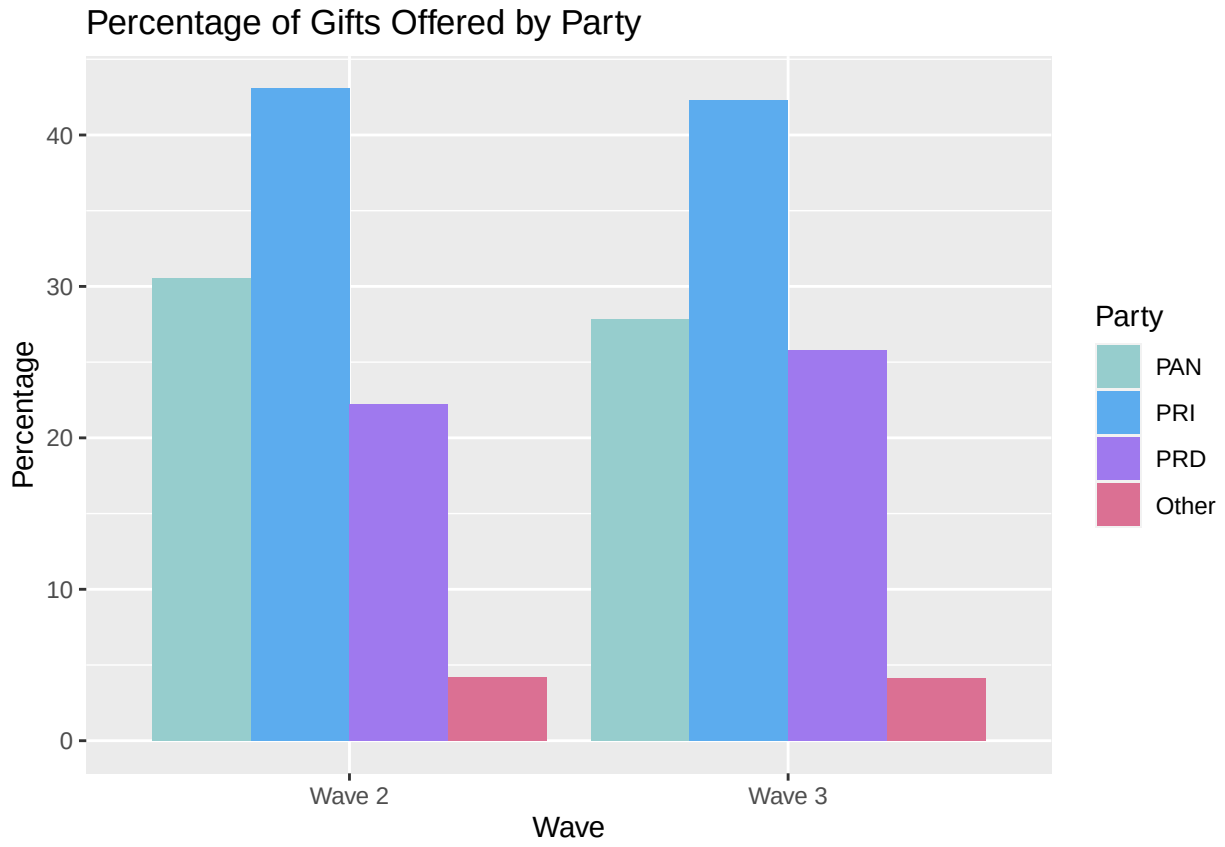

Figure A.1. Graph of percentage of gifts separated by waves and color-coded by political party.

Literature Cited

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