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Statistical Analysis of Political Perspectives in Singapore

Introduction

A research company called Pew Research Center conducted an international survey asking questions about specific topics ranging from politics to technologies to media. These survey questions and interviews can be used to discover any statistical biases on the issues in those given countries. In this paper, we will be looking at the country of Singapore and using these survey questions to see if specific questions in the questionnaire will be able to discover any general opinions from the people of Singapore. Looking at these questions from the questionnaire, an analysis is conducted on the particular views of the Singaporeans on specific topics, mainly politics.

In this paper, we asked three different questions about the politics in Singapore and concluded with three other hypotheses. The first question is: How does access to the internet relate to social media use and the spread of political news in Singapore? With the hypothesis that "the increase in internet access in Singapore is positively correlated with the usage of social media and the spread of political news," The second question is: How does access to the internet influence one's overall opinion of the United States? With the hypothesis that "the increase in internet access in Singapore is positively correlated with the opinions in the United States," The last question is: How do the opinions and perceptions of Singaporeans regarding China

positively correlate with each other and contribute to the overall dynamics of the relationship between China and Singapore? With the hypothesis that "the Singaporeans' attitudes toward China are positively correlated with the overall dynamics in the relationship between China and Singapore,"

About Singapore

Singapore is a small but developed country with a population of around six million Singaporeans within seven hundred and twenty square kilometers. It is located in southeastern Asia, with most demographics being seven percent Chinese in 2021. Statistics from 2020 show that around fifty percent of the population speaks English, and thirty percent speaks Mandarin. In Singapore, the majority of the age demographics that reside in the country are people from the age of fifteen through sixty-four years old, with around seventy-two percent of the population falling into that age group. The majority of the population in Singapore is concentrated around the urban areas along the southern coast. As Singapore continues to flourish, its urban focal point along the south coast is a testament to its concentrated economic and social vibrancy.

As mentioned earlier, Singapore is a very well-developed country with a GDP of around 397 billion USD per capita in 2021. Regarding other countries, Singapore has the world's 37th highest GDP per capita. Singapore has the world's leading manufacturing industries, including electronics and chemicals, biomedical sciences, logistics, and transport. Other emerging studies contributing to Singapore's economy are medical technology, aerospace engineering, clean energy, healthcare, and content development. This multifaceted approach underscored

Singapore's commitment to sustained financial growth, making it a dynamic and resilient force on the global stage.

The political structure of Singapore was modeled after the Westminster System, featuring the three branches of government: the legislature, executive, and judiciary. The discussion of politics in structure is relevant because all the research questions in this paper involve some form of internal or international politics. Singapore maintains a strong relationship with the United States regarding international relations. Singapore is one of the United States' most vital bilateral partners in Southeast Asia. The United States cooperates with Singapore on various security issues, including border security, maritime security, military preparedness, counter-proliferation, cybersecurity, and counterterrorism. Notably, the United States has active government-to-government sales cases, with Singapore totaling $8.48 billion under the Foreign Military Sales (FMS) system, reaffirming their defense cooperation.

The relationship between China and Singapore, once a special relationship that can be traced back to its independence in 1965, has now evolved into a complex one. Historically, under the former Singaporean Prime Minister Lee Kwan Yew, China and Singapore had a spectacular economic relationship with China. However, as China's power grew, Singapore strengthened ties with other major powers in fear of getting taken over by the mighty Chinese military power. While the security cooperation of Singapore and other major powers supporting Singapore, China and Singapore remain in a mutually beneficial situation. However, recent changes in China's growth in maritime trade and high-text manufacturing will pose a future threat to

Singapore's economic state. As the future progresses, the economic and political relationship between China and Singapore creates more complex dynamics between the two countries.

Data Information

We mainly used the Pew Research Center data to analyze Singapore for this project. Pew Research Center collected their data by doing surveys through telephone or face-to-face interviews. These face-to-face interviews were conducted using computer-assisted personal interviews (CAPI) or pen-and-paper interviews (PAPI). After these interviews, they would analyze the results based on national samples. On top of recording the results, they would calculate the margin of error based on all interviews conducted in Singapore. It considers clustering and weighting with a 95% confidence that the error attributable to sampling and other random effects is plus or minus the margin of error. In addition to sampling error, they would consider question-wording and practical difficulties in conducting surveys that could introduce error or bias into the findings of opinion polls.

For Singapore, these surveys were conducted in 2022 using a Global Attitudes Survey, a series of worldwide public opinion surveys encompassing a broad array of subjects, from their people's assessments of their own lives to their views about the current state of the world. When Pew Research Center picked their sample, they used random digital dial (RDD) probability sampling. These interviews start with asking the recipient if they are eighteen or older. If not, the interview ends right away, but if they are eighteen or older, they would have up to seven phone calls to complete the interviews with the selected respondent. In the interview, multiple languages were offered to grab diverse sample groups. The languages offered were Bahasa,

Malay, Mandarin, and English. These interviews spanned from March 7 through April 24, 2022. In their data, the Pew Research Center collected a sample size of 1,000 with a margin error of three and a half. Some pieces of information like gender, age, education, region, and probability of selection of respondents were weighted during the experiments. All of these factors were included when we decided to analyze our research topics and questions.

Research Question 1/Hypothesis 1

The first research question we decided on was: How does access to the internet relate to social media use and the spread of political news in Singapore? Since Singapore is a very technologically advanced country, access to the internet is very reliable, so it is easy to obtain news quickly and on time. Also, there is a risk of spreading misinformation online, especially on social media. According to a Massachusetts Institute of Technology study, false news is seventy percent more likely to be shared on social media than accurate stories.

From this information, we hypothesized that increasing internet access in Singapore positively correlates with social media usage and the spread of political news. This hypothesis explores the intricate relationship between the accessibility of digital media, especially social media engagement, and the spread of political information on social media in Singapore.

Data Used Analysis 1

The data in our first analysis consisted of 1 response question and four predictor questions.

- In the first model, we decided to let "use_internet" be our response variable. This variable had responses from the following question: "Do you use the internet, at least occasionally?".
    - The responses were 1=Yes, 2=No, 8=Don't Know, and 9=Refused.
- Next, we selected four predictors that we believed would help predict this response variable: own_cell_standalone[1], smeffect_changemind[2], smeffect_awareness[3], and smimpact_manipulate[4].
    - own_cell_standalone: "Do you own a mobile phone?"
        - The responses available were 1=Yes, 2=No, 8=Don't Know, and 9=Refused.
    - smeffect_changemind: "In general, do you think social media is a very effective, somewhat effective, not too effective, or not at all effective way to do the following?" "c. Change people's minds about political or social issues."
        - The responses available were 1=Very effective, 2=Somewhat effective, 3=Not too effective, 4=Not at all effective, 8=Don't know, and 9=Refused
    - smeffect_awareness: "In general, do you think social media is a very effective, somewhat effective, not too effective, or not at all effective way to do the following?" "d. Raise public awareness about political or social issues."
        - The responses available were 1=Very effective, 2=Somewhat effective, 3=Not too effective, 4=Not at all effective, 8=Don't know, and 9=Refused
    - smimpact_manipulate: "Do you think access to the internet and social media has made people more or less __, or has it not had much impact either way? d. Easy to manipulate with false information and rumors."

- The responses available were 1=More, 2=Less, 3=Has not had much impact either way, 8=Don't Know, and 9=Refused

In this analysis, we removed values such as eight, "Don't Know," nine, "Refused," and values that had no positive or negative meaning, such as "Staying about the same" and"Not a problem at all." The Logistic Regression Model was used in all three analyses where negative expressions are values at zero, and positive expressions are values at one.

Analysis 1

Full Initial Model

We used the proc logistic function to create a Logistic Regression Model on four predictors to predict if Singapore's internet access increase positively correlates with social media usage and political news. Viewing **Figure 1.1**, we can see that two predictors, own_cell_standalone[2] and smeffect_changmind[3], are insignificant as their p values, using a significance level of alpha = 0.05, are 0.0579 and 0.3747, respectively. If we want to create a better model, we should drop predictors that are not significant in the model. But for now, we should analyze this model. Viewing **Figure 1.2,** we can conclude:

- Each person who owns their cell phone was 15.45 times as likely to have internet access as those who don't.
- For each person who responded positively about social media being able to change people's minds about political or social issues, they were 1.407 times as likely to have internet access as those who don't.

- For each person who responded positively about social media being able to raise public awareness about political or social issues, they were 0.254 times as likely to have internet access compared to those who didn't.
- For each person who responded positively about social media allowing people to be more easily manipulated with false information and rumors, they were 0.434 times as likely to have internet access compared to those who didn't.

Viewing **Figure 1.3**, the entire model is predictive with 46.0% concordance. We can reduce the model as some predictors are insignificant and see if we can improve the concordance.

Reduced Model

After reducing our model, we can create a new reduced model by removing own_cell_standalone1 and smeffect_changemind2, as they were not significant predictors. Viewing **Figure 1.4** and using a significance level alpha = 0.05, we can see that smeffect_awareness^{3} and smimpact_manipulate ^{four} are still substantial as their p-values are 0.0003 and 0.0061, respectively. This model is much better than before, as every predictor is now significant. Viewing **Figure 1.5**, we can examine the odds ratio estimates to conclude:

- For each person who responded positively about social media being able to raise public awareness about political or social issues, they were 0.305 times as likely to have internet access compared to those who didn't.

- For each person who responded positively about social media allowing people to be more easily manipulated with false information and rumors, they were 0.427 times as likely to have internet access compared to those who didn't.

Viewing **Figure 1.6**, we can see that this model is predictive with 40.0% concordance.

Although we have a reduced model, we can observe that our concordance dropped from 46.0% to 40.0%. Ultimately, this is alright, as we may have yet to choose the best predictors for this question. We can select a complete model with half of the predictors significant with a 46.0% concordance or a reduced model with all of the predictors significant with a 40.0% concordance. Ultimately, choosing the model where all the predictors are substantial would be the model more favorable. Some questions that I would include if we decided to look into more models would consist of a person's political view, class, and economic class.

Research Question 2/Hypothesis 2

The second research question we decided on was, "How does access to the internet influence one's overall opinion of the United States?" The United States is one of the most prevalent and talked about countries on social media, being both good and bad, giving outside countries mixed opinions about the United States. Due to this, people with access to the Internet are more inclined to have a different opinion on the United States than those without access to the Internet.

Thus, our second hypothesis was "The increase in internet access in Singapore is positively correlated with the opinions on the United States." The internet is a powerful tool for gathering information and many different viewpoints. Since the United States and Singapore share a strong relationship, influential individuals can affect the digital landscape of people's overall opinions of the United States. As global tension escalates and the United States plays a significant role, it's crucial to understand the formation of views worldwide, particularly in Singapore. This hypothesis aims to explore the relationship between the United States and Singapore using the power and influence of digital connectivity to shed light on the Singaporean people.

Data Used Analysis 2

The data in our second analysis consisted of 6 questions about how internet use impacts people's opinions on the United States. Two of these variables are repeated from analysis one.

The data used in our second analysis, as well as the first analysis, were "Do you use the internet, at least occasionally?" and "Do you own a mobile phone?" (Responses available above in "**Data Used Analysis 1**").

The other four questions used for analysis 2 consist of fav_US[3], growinflu_us[4], reliable_US[5], and afg_handle[6]:

- fav_US[3]: "Please tell me if you have a very favorable, somewhat favorable, somewhat unfavorable, or very unfavorable opinion of "The United States."
    - The responses available were: 1=Very favorable, 2=Somewhat favorable, 3=Somewhat unfavorable, 4=Very unfavorable, 8=Don't know, 9=Refused

- growinflu_us[4]: “Thinking about “The United States”, would you say its influence in the world in recent years has been getting stronger, getting weaker, or staying about the same?”
    - The responses available were: 1=Getting stronger, 2=Getting weaker, 3=Staying the same, 8=Don’t know, 9=Refused
- reliable_US[5]: “In general, how reliable is the United States as a partner to Singapore? Is the United States reliable, somewhat reliable, not too reliable, or not reliable as a partner?”
    - The responses available were: 1=Very reliable, 2=Somewhat reliable, 3=Not too reliable, 4=Not at all reliable, 8=Don’t know, 9=Refuse
- afg_handle[6]: “Regardless of what you think about the United States’ decision to withdraw troops from Afghanistan, do you think the withdrawal itself was handled very well, somewhat well, not too well, or not at all well?”
    - The responses available were: 1=Very well, 2=Well, 3=Somewhat well, 4=Not too well, 5-Not at all well, 8=Don’t know, 9=Refused

Overall, the six variables we used were: use_internet[1] (Do they use the internet), own_cell_standalone[2] (Do they own a mobile phone), fav_US[3] (How favorable is your opinion on the United States), growinflu_us[4] (Opinion on United States influence on the world in recent years), reliable_us[5] (How reliable is the United States as a partner to Singapore), afg_handle[6] (How well do you think the United States withdrawal from Afghanistan was handled)

Analysis 2

Full Initial Model

We again used proc logistics to create a Logistic Regression Model, this time using six different predictor variables to test if access to the internet influences a person's opinion of the United States. As seen below in **Figure 2.1**, 3 of the predictor variables appeared insignificant as they had a p-value above our alpha level of .05. These variables being: fav_us[3] with a p-value of 0.2681, growinflu_us[4] with a p-value of 0.0979, and reliable_us[5] with a p-value of 0.1431. With this entire model, we had a percent concordant of 59.8, as seen in **Figure 2.2**. Next, we tried removing the insignificant variables from the model and re-ran the test. After re-running the test with the insignificant variables removed, the remaining variable's p-values increased, and the percent concordant decreased. Due to this, we decided to resort back to our entire model as we decided the model with a higher percent concordant would more accurately present the data, although it had some insignificant variables. With this, when looking at the entire model, under "Odds Ratio Estimates" of **Figure 2.1**, we can conclude:

- Each person who owns a cell phone was 0.051 times as likely to have internet access as those who don't.
- For each person who responded positively about how favorable they are to the United States, they were 0.667 times as likely to have internet access compared to those who don't.
- For each person who responded positively about their opinion on the United States' influence on the world in recent years, they were 1.773 times as likely to have internet access compared to those who didn't.

- For each person who responded positively about how reliable the United States is as a partner to Singapore, they were 0.588 times as likely to have internet access compared to those who don't.
- For each person who responded positively about how well they thought the United States withdrawal from Afghanistan was handled, they were 2.396 times more likely to have internet access than those who didn't.

Overall, these results may have been caused by picking variables we randomly selected, assuming they would be related to the hypothesis. If we continue our testing, we could add other variables to see if they are significant to our results and how they impact our hypothesis.

Research Question 3/Hypothesis 3

The third research question for this project is: how do the opinions and perceptions of Singaporeans regarding China positively correlate with each other and contribute to the overall dynamics of the relationship between China and Singapore? China and Singapore had a mutually beneficial relationship for a long time, but as time passed, China's power snowballed, causing complex relationships between the two countries. Especially since the event of November 2016, China seized nine armored vehicles that Singapore had shipped through Hong Kong on their return from a training exercise in Taiwan. This is one of many actions that mark evolving dynamics and tensions between this once-a-long-standing special relationship.

We hypothesize that Singaporeans' attitudes toward China are positively correlated with the overall dynamics in the relationship between China and Singapore. Despite certain events

that affected their relationship, people in Singapore maintain a positive outlook on China, especially those who immigrated from China back in 1965 or people aware of the special mutually beneficial economic relationship that China and Singapore have. Currently, China has not engaged in severe activities that would lead to significant mistrust between the two nations. This hypothesis aims to explore the relationship between the opinions of Singaporeans on the complex relationship between their country and China.

Data Used Analysis 3

The data used in our third analysis included one response question and five predictor questions.

- We decided to let "relations_china" be our response variable in the model. This variable has responses from the following question: "In general, how would you describe relations today between China and Singapore? Would you say they are very good, somewhat good, somewhat bad, or very bad?"
    - This variable is coded as "relations_china" with the values of 1=Very good, 2=Somewhat good, 3=Somewhat bad, 4=Very bad, 8=Don't know, 9=Refused.
- Next, we selected five predictors we believed would help predict this response variable: fav_china[1], intl_system[2], growinflu_china[3], china_politics[4], confid_xi[5].
    - fav_china[1]: "Please tell me if you have a very favorable, somewhat favorable, some unfavorable, or very unfavorable opinion of China."
        - The responses available were 1=Very favorable, 2=Somewhat favorable, 3=Somewhat unfavorable, 4=Very unfavorable, 8=Don't know, 9=Refused.

- intl_system[2]: “When thinking about why countries cooperate with each other, what is more important for bringing nations together?”
    - The responses were 1=Common values, 2=Common problems, 8=Don’t know, 9=Refused.
- growinflu_china[3]: “Thinking about each of the following countries (China), would you say its influence in the world in recent years has been getting stronger, getting weaker, or staying the same?”
    - The responses available were 1=Getting stronger, 2=Getting weaker, 3=Staying about the same, 8=Don’t know, 9=Refused.
- china_politics[4]: “I’m going to read you a list of things that may be problems for Singapore. For each one, please tell me if you think it is a very serious problem, somewhat serious problem, not too serious problem, or not a problem at all.” For this list, it was China’s involvement in politics in Singapore.
    - These responses were 1=Very serious problem, 2=Somewhat serious problem, 3=Not too serious of a problem, 4=Not a problem at all, 8=Don’t know, 9=Refused.
- confid_xi[5]: “Now, I’m going to read a list of political leaders. For each, tell me how much confidence you have in each leader to do the right thing regarding world affairs - a lot of confidence, some confidence, not too much confidence, or no confidence at all.” The leader chosen was the Chinese President Xi Jinping.
    - The response was 1=A lot of confidence, 2=Some confidence, 3=Not too much confidence, 4=No confidence at all, 8=Don’t know, 9=Refused.

Analysis 3

Full Initial Model

Similarly, we used the Logistic Regression Model for the other two analyses. Still, we used five predictors to predict Singaporeans' attitudes toward China, which positively correlate with the overall dynamics in the relationship between China and Singapore. Viewing **Figure 3.1**, we can see that four out of five predictors are not significant, fav_china[1], intl_system[2], growinflu_china[3], and china_politcs[4], are not significant as their p values are greater than 0.05, using a significance level of alpha=0.05 with fav_china[1] p-value=0.4338, intl_system[2] p-value=0.8490, growinflu_china[3] p-value=0.9745, and china_politcs[4] p-value=0.9531 respectively. If we want to create a better model, we should drop predictors that are not significant in the model. But for now, we should analyze this model. Viewing **Figure 3.2**, we can conclude:

- In each person's opinion, who views a positive correlation between the relationship between China and Singapore is 1.135 times more likely to have a favorable viewpoint on China.
- Each person who responded positively about the positive relations with China and Singapore believes they are 1.135 times more likely to have a favorable opinion about China. The values that bring a nation together are common values.
- Each person who responded positively about the relationship between China and Singapore is 1.484 times more likely to have a favorable opinion of the president of China, Xi Jinping.

- For each person who responded positively about the positive relationship between China and Singapore, they are 1.009 times more likely to think that China's involvement in politics in Singapore is not a problem at all.
- The last predictors we looked at showed that the people of Singapore don't believe that China is getting stronger or weaker because the odds ratio estimates for this test are less than 0.001.

Viewing **Figure 3.3**, the entire model is predictive with 52.0% concordance. We can reduce the model as some predictors are insignificant and see if we can improve the concordance.

Reduced Model

After reducing our model, we can create a new reduced model by removing fav_china[1], intl_system[2], and china_politcs[4], as they were not significant predictors, but we still kept growinflu_china[3]. We want to see if removing all the other variables would show any change for the growinflu_china[3] predictor. Viewing **Figure 3.4** and using a significance level alpha = 0.05, we can see that growinflu_china[3] still has no change in p-value, and confid_xi[5] is still a significant predictor with a p-value of less than 0.001. As a result, this reduced model is worse than the entire model, as every predictor contributed to worse results. Viewing **Figure 3.5**, we can examine the odd ratio estimates to conclude:

- For each person who responded positively about the relationship between China and Singapore, they were 0.642 times more likely to have an optimistic viewpoint of China's president, Xi Jinping.

- People who responded positively about the relationship between China and Singapore are more than 999.999 times more likely to have an optimistic viewpoint of China's global power.

This doesn't necessarily make any sense at all. Therefore, we made some assumptions about why we got this value. Assumption one would suggest a strong association but doesn't directly imply causation. The sample size could be too small such that it couldn't predict as accurately. Some potential bias could be found during the experiment, causing this high odd ratio. Hence, we can conclude that growinflu_china^3 is not a valid predictor for the analysis.

Viewing **Figure 3.6**, we can see that this model is predictive with 29.0% concordance.

Although we have a reduced model, we can observe that our concordance dropped from 52.0% to 29.0%. Ultimately, this is fine, as we may have yet to choose the best predictors for this question. As a result, it'll be optimal to select the full model because of the significantly higher concordance value. Choosing the model where all the predictors exist would be more favorable. Some questions that I would include if we decided to look into more models would consist of a person's political view, background, and economic class.

Tables

Analysis of Maximum Likelihood Estimates					
Parameter	DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept	1	-1.6179	1.4675	1.2154	0.2703
own_cell_standalone	1	2.7376	1.4438	3.5955	0.0579
smeffect_changemind	1	-0.3416	0.3848	0.7880	0.3747
smeffect_awareness	1	1.3713	0.3730	13.5179	0.0002
smimpact_manipulate	1	0.8347	0.3137	7.0796	0.0078

Figure 1.1: Full Initial Model of Analysis of Maximum Likelihood Estimates for Hypothesis One

Odds Ratio Estimates			
Effect	Point Estimate	95% Wald Confidence Limits	
own_cell_standalone	15.450	0.912	261.740
smeffect_changemind 0 vs Very effective	1.407	0.662	2.991
smeffect_awareness 0 vs Very effective	0.254	0.122	0.527
smimpact_manipulate 0 vs More	0.434	0.235	0.803

Figure 1.2: Full Initial Model of Odds Ratio Estimates for Hypothesis One

Association of Predicted Probabilities and Observed Responses			
Percent Concordant	46.0	Somers' D	0.290
Percent Discordant	17.0	Gamma	0.460
Percent Tied	37.0	Tau-a	0.036
Pairs	49088	c	0.645

Figure 1.3: Full Initial Model of Association of Predicted Probabilities and Observed Responses for Hypothesis One

Analysis of Maximum Likelihood Estimates						
Parameter		DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept		1	3.0071	0.1730	301.9855	<.0001
smeffect_awareness	0	1	-1.1885	0.3282	13.1109	0.0003
smeffect_awareness	Very effective	0	0	.	.	.
smimpact_manipulate	0	1	-0.8518	0.3109	7.5059	0.0061
smimpact_manipulate	More	0	0	.	.	.

Figure 1.4: Reduced Model of Analysis of Maximum Likelihood Estimates for Hypothesis One

Odds Ratio Estimates			
Effect	Point Estimate	95% Wald Confidence Limits	
smeffect_awareness 0 vs Very effective	0.305	0.160	0.580
smimpact_manipulate 0 vs More	0.427	0.232	0.785

Figure 1.5: Reduced Model of Odds Ratio Estimates for Hypothesis One

Association of Predicted Probabilities and Observed Responses			
Percent Concordant	40.0	Somers' D	0.270
Percent Discordant	13.0	Gamma	0.509
Percent Tied	46.9	Tau-a	0.033
Pairs	49088	c	0.635

Figure 1.6: Reduce Model of Association of Predicted Probabilities and Observed Responses for Hypothesis One

Analysis of Maximum Likelihood Estimates						
Parameter		DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept		1	2.5192	0.2830	79.2519	<.0001
own_cell_standalone	0	1	-2.9774	1.4773	4.0620	0.0439
own_cell_standalone	Yes	0	0	.	.	.
fav_us	0	1	-0.4053	0.3660	1.2262	0.2681
fav_us	Very favorable	0	0	.	.	.
growinflu_us	0	1	0.5728	0.3460	2.7402	0.0979
growinflu_us	Getting stronger	0	0	.	.	.
reliable_us	0	1	-0.5304	0.3622	2.1441	0.1431
reliable_us	Very reliable	0	0	.	.	.
afg_handle	0	1	0.8740	0.4372	3.9961	0.0456
afg_handle	Very well	0	0	.	.	.

Odds Ratio Estimates			
Effect	Point Estimate	95% Wald Confidence Limits	
own_cell_standalone 0 vs Yes	0.051	0.003	0.921
fav_us 0 vs Very favorable	0.667	0.325	1.366
growinflu_us 0 vs Getting stronger	1.773	0.900	3.494
reliable_us 0 vs Very reliable	0.588	0.289	1.197
afg_handle 0 vs Very well	2.396	1.017	5.645

Figure 2.1: Analysis of Maximum Likelihood Estimates and Odds Ratio Estimates for Hypothesis Two

Association of Predicted Probabilities and Observed Responses			
Percent Concordant	59.8	Somers' D	0.304
Percent Discordant	29.4	Gamma	0.341
Percent Tied	10.8	Tau-a	0.038
Pairs	23288	c	0.652

Figure 2.2: Association of Predicted Probabilities and Observed Responses for Hypothesis Two

Analysis of Maximum Likelihood Estimates						
Parameter		DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept	Very good	1	-1.5337	0.1993	59.2093	<.0001
Intercept	Somewhat good	1	2.4951	0.2225	125.7215	<.0001
growinflu_china	0	1	-17.6602	551.9	0.0010	0.9745
growinflu_china	Getting stronger	0	0	.	.	.
fav_china		1	0.1269	0.1621	0.6126	0.4338
intl_system		1	0.0277	0.1453	0.0363	0.8490
confid_xi		1	0.3950	0.1664	5.6338	0.0176
china_politics		1	0.00862	0.1465	0.0035	0.9531

Figure 3.1: Full Initial Model of Analysis of Maximum Likelihood Estimates for Hypothesis Three

Odds Ratio Estimates			
Effect	Point Estimate	95% Wald Confidence Limits	
growinflu_china 0 vs Getting stronger	<0.001	<0.001	>999.999
fav_china	1.135	0.826	1.560
intl_system	1.028	0.773	1.367
confid_xi	1.484	1.071	2.057
china_politics	1.009	0.757	1.344

Figure 3.2: Full Initial Model of Odds Ratio Estimates for Hypothesis Three

Association of Predicted Probabilities and Observed Responses			
Percent Concordant	52.0	Somers' D	0.149
Percent Discordant	37.1	Gamma	0.167
Percent Tied	10.9	Tau-a	0.068
Pairs	208877	c	0.575

Figure 3.3: Full Initial Model of Association of Predicted Probabilities and Observed Responses for Hypothesis Three

Analysis of Maximum Likelihood Estimates						
Parameter		DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept	0	1	-2.5592	0.1698	227.0990	<.0001
Intercept	Somewhat good	1	1.4641	0.1357	116.3497	<.0001
confid_xi		1	-0.4425	0.1550	8.1502	0.0043
growinflu_china	0	1	17.6526	554.6	0.0010	0.9746
growinflu_china	Getting stronger	0	0	.	.	.

Figure 3.4: Reduced Model of Analysis Of Maximum Likelihood Estimates for Hypothesis Three

Odds Ratio Estimates			
Effect	Point Estimate	95% Wald Confidence Limits	
confid_xi	0.642	0.474	0.870
growinflu_china 0 vs Getting stronger	>999.999	<0.001	>999.999

Figure 3.5: Reduced Model of Odds Ratio Estimates for Hypothesis Three

Association of Predicted Probabilities and Observed Responses			
Percent Concordant	29.0	Somers' D	0.129
Percent Discordant	16.1	Gamma	0.286
Percent Tied	55.0	Tau-a	0.058
Pairs	212558	c	0.565

Figure 3.6: Reduced Model of Association of Predicted Probabilities and Observed Responses for Hypothesis Three

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