Bullies in International Relations:

A Study of Military Interventions from 1956-2005

February 24, 2016

Abstract

Inspired by Clausewitz, we study the nature of military interventions and its distribution. We find that military interventions from 1956 - 2005 are primarily conducted by few state actors (80/34 split), as indicated by high heterogeneity of underlying propensities to intervene. These are primarily state actors who have demonstrated the logistical capability, resources, and willingness to conduct large military interventions, and who have frequently intervened in the past for strategic and policy change objectives. We use this model to forecast the number of interventions over the next decade.

Introduction

Carl von Clausewitz was the first to make clear the point of war: "war is the continuation of politics by other means". More abstractly, Clausewitz may have been referring to all kinds of military operations.

In this case, armed with a dataset from Kansas State University, we are well-suited to study the character of nations through military interventions. We will consider interventions with strategic objectives, interventions aimed at changing domestic or

foreign polices, and interventions by number of troops involved. We seek to understand the how state actors behave with regards to military interventions.

Strategic intervention refers to those conducted due to regional power balance, stability, and ideological issues either implicit or overt. Policy interventions refer to those conducted in order to force some change in the domestic or foreign policies of the target country. The number of troops involved is a proxy for the power and willingness to exert that power for state objectives of the intervener.

Data

We use the International Military Intervention data set, which records "the movement of regular troops or forces (airborne, seaborne, shelling, etc) of one country inside another, in the context of some political issue or dispute". These are conscious choices made by state actors and national leaders. Covariates include such factors as number of causalities, whether a war was humanitarian in nature, and so on.

The data also included non-state actors and international coalitions. The United Nations and its various arms appears many times in the data, as do both permanent and temporary international coalitions, eg. the Organization of American States, the North Atlantic Treaty Organization, Organization of African Unity, etc. We removed all such occurrences to focus our attentions on the behaviors of states instead.

Our "individuals" in this case are 134 countries, and the period of observation is 1956 - 2005. We must note however that not all countries have had the same opportunity to perpetrate a military intervention: some countries in the IMI dataset no longer exist by 2005, eg. Yugoslavia, the U.S.S.R, West and East Germany; however, as the number of such countries is small relative to the size of the dataset, errors introduced should not be devastating to parameter estimation.

Since the number of countries is limited and military interventions difficult to conceal in the 20th century, our data should have captured all relevant interventions of

interest. This data is thus representative by definition. In this paper we do not primarily seek to build a forecasting model: hence we do not have holdout samples as testing data.

Beyond the lack of testing data, the generalizability of our model is suspect. First off, nations may exert their political wills through sponsorship of guerilla groups or other non-state actors, as was prevalent during the Cold War. Such occurrences are not captured in our dataset. Furthermore, since we have excluded coalitions and multinational forces (peacekeeping or not), we have excluded another important source of influence. Furthermore, we are not currently equipped to deal with non-stationarity—however, we may be sure that norms regarding military interventions have changed during the period of 50 years. We are also ill-equipped to deal with covariates, such as GDP and size of standing military, which are critical to a nation's ability to exert military influence.

With these limitations in mind, we dive into the models with the hope that it will inform us of the different behaviors of state actors with regards to underlying propensity to intervene.

Overview of Models

The nature of our data dictates we run a truncated Poisson, shifted Poisson, truncated NBD and shifted NBD models. Then, we will segment by strategic wars, by policy wars and by the size of intervention. These segments will all be fitted with shifted NBD models. In this, our interpretation is the number of repeat interventions for states that have intervened at least once in the past.

Models for the truncated Poisson, shifted Poisson and truncated NBD are shown in the appendix. The first two are excluded from analysis due to an obvious lack of fit. The truncated NBD model is excluded for imputing 153 countries for zero interventions; the total number of states then would have exceeded 287, far more than the number

of states in existence over those five decades. In fact, we expect that if in those five decades, a state has not been involved in a single, volitional military intervention, that they may best be treated as hardcore never intervener.

Pooled Shifted NBD

Prior to fitting the model, we imagine that the distribution should be heterogeneous. Few countries have the resources or manpower to continuously conduct military operations; even those who do may face public scrutiny or international pressure. Indeed, the number of nations with small numbers of total interventions constitute a large proportion of the data. Hence, we expect that $r < 1$.

	Pooled Data
n	134
α	0.118
r	0.580
LL	-286.304
Chi	3.723
Df	8
p	0.881

Table 1: Output of Pooled Shifted NBD Model

That is indeed the case here. The distribution of underlying propensity for military interventions is very heterogeneous. There is a considerable fat tail of countries which have conducted 10+ military interventions in the five decades measured; simultaneously, there are many more countries which have participated only once. We will investigate the fat tail by partitioning by covariates to discern the exact characteristics of the high-frequency interveners.

The goodness of fit here stands at $p = 0.881$; our model fits extraodinarily well. By examination of the histogram as well, there are no dramatic differences between the expected number and the observed. We may safely conclude that, most likely, spikes are not necessary for the pooled data.

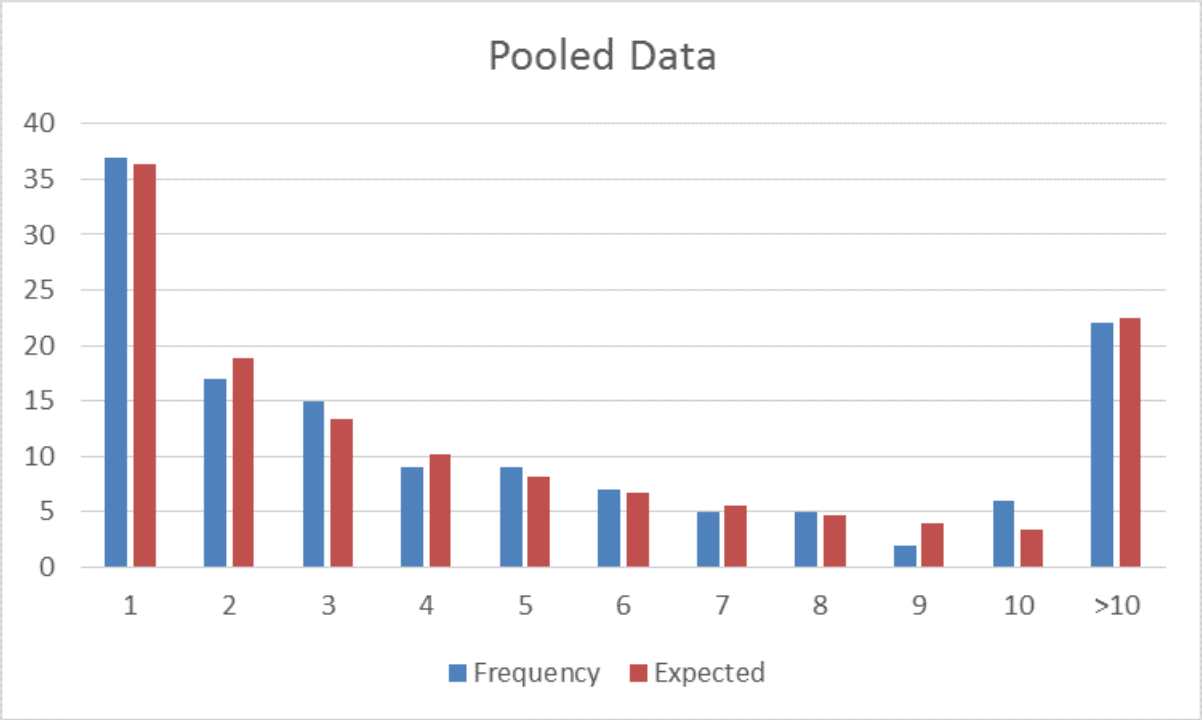

Figure 1: Histogram of Pooled Shifted NBD Model

Partition by Strategic Intervention

Our first attempt to better understand the high-frequency interveners will be by partitioning on whether the intervener is strategic or non-strategic. The classification was arbitrary. We considered all interventions by each state, which in the data set was classified as "strategic" or "non-strategic". If the proportion of "strategic" interventions was greater than half, we considered the intervener strategic.

We expect that strategic interveners will have a higher propensity of intervention than non-strategic ones. They have proven their capacity to conduct military operations for the sake of influencing regional politics or exerting ideological influence. If the intervention is successful, then the intervener will likely become stronger, enabling them to conduct larger-scale or more frequent interventions in the future. Hence, we expect that r for strategic interveners will be larger than r for non-strategic ones.

Our suspicions are confirmed. Strategic interveners do so three times more on

	Strategic	Non-Strategic
n	68	66
α	0.058	2.435
r	0.529	0.878
LL	-139.828	-134.472
Chi	3.559	9.743
Df	8	8
p	0.895	0.284
mean	9.190	2.434

Table 2: Output of NBD Model by Strategic Intervention

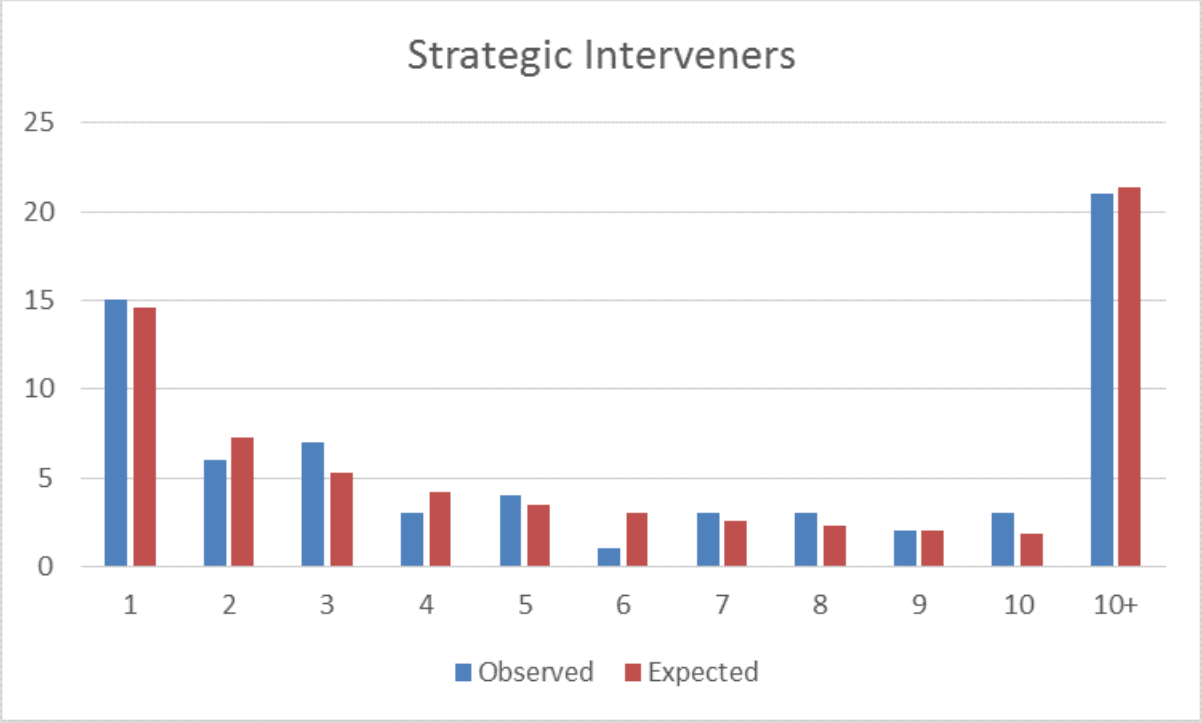

Figure 2: Histogram for Strategic Interveners

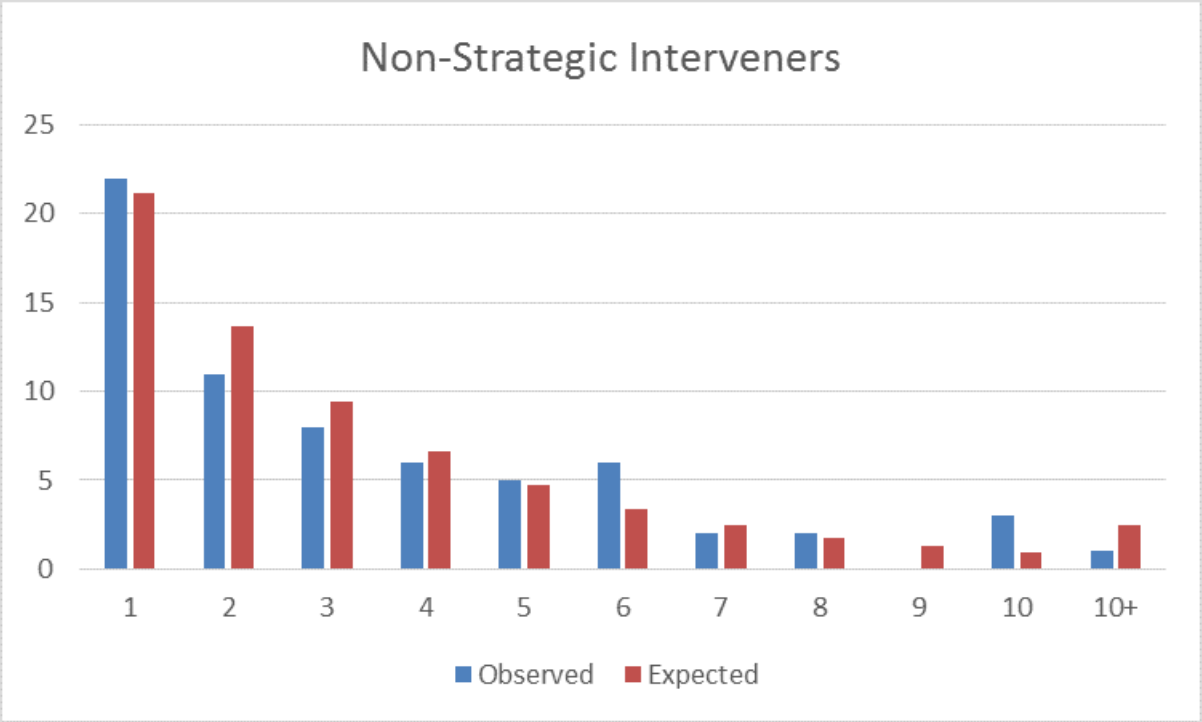

Figure 3: Histogram of Non-Strategic Interveners

average than non-strategic ones, and the higher r indicates greater homogeneity in terms of high intervention propensity.

Thus, the segments of strategic intervener and non-strategic interveners clearly do not behave in the same way. A visual comparison of the histogram makes this clear. At a significance level of 0.05, the Likelihood ratio test confirms our guess. Strategic interveners have a much higher propensity for intervention than non-strategic interveners.

	Strategic against Pooled
Df	2
Chi	24.008
p	< 0.001

Table 3: Likelihood Ratio Test Results for Strategic Interventions

Clausewitz is pertinent here; military interventions are just another tool of the

state, and the more equipped one is to exert oneself militarily for strategic purposes, the more likely one is to do so.

Partition by Policy Intervention

Our second attempt to understand high-frequency interveners will be through partitioning by policy interventions. Recall these were conducted for the sake of changing either the domestic or foreign policy of the target country. For example, the Vietnam war was clear a policy intervention. U.S. involvement in the Nicaraguan Revolution was a clear attempt to influence domestic policy in another country. We will classify states as policy interveners if the proportion of interventions for the sake of changing policies exceed 50%, as before. Our reasoning here is similar to strategic intervention. States capable of exerting themselves militarily to change the policy stance of another country will do so out of political advantage. Hence, such states are likely more capable of military interventions overall and more willing to conduct military operations. Therefore, we expect that policy interveners will have a higher r than non-policy interveners.

	Policy	Non-Policy
n	41	93
α	0.106	0.133
r	0.712	0.549
LL	-89.312	-194.944
Chi	9.172	2.356
Df	8	8
p	0.328	0.968
mean	6.721	4.128

Table 4: Output of NBD Model by Policy Intervention

Our supposition is again confirmed. Policy interveners exhibit a higher propensity to intervene than non-policy interveners; and they intervene one-half times more on average.

Examination of the histogram further corroborates our theory. The histogram for

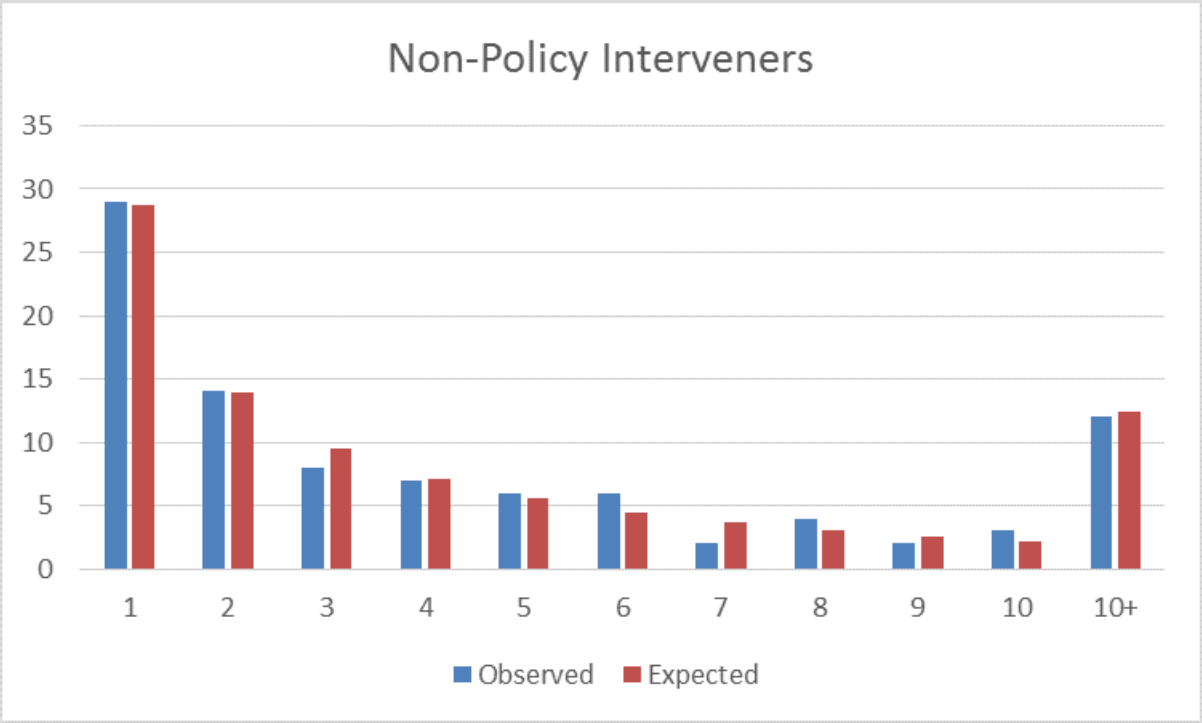

Figure 4: Histogram of Non-Policy Interveners

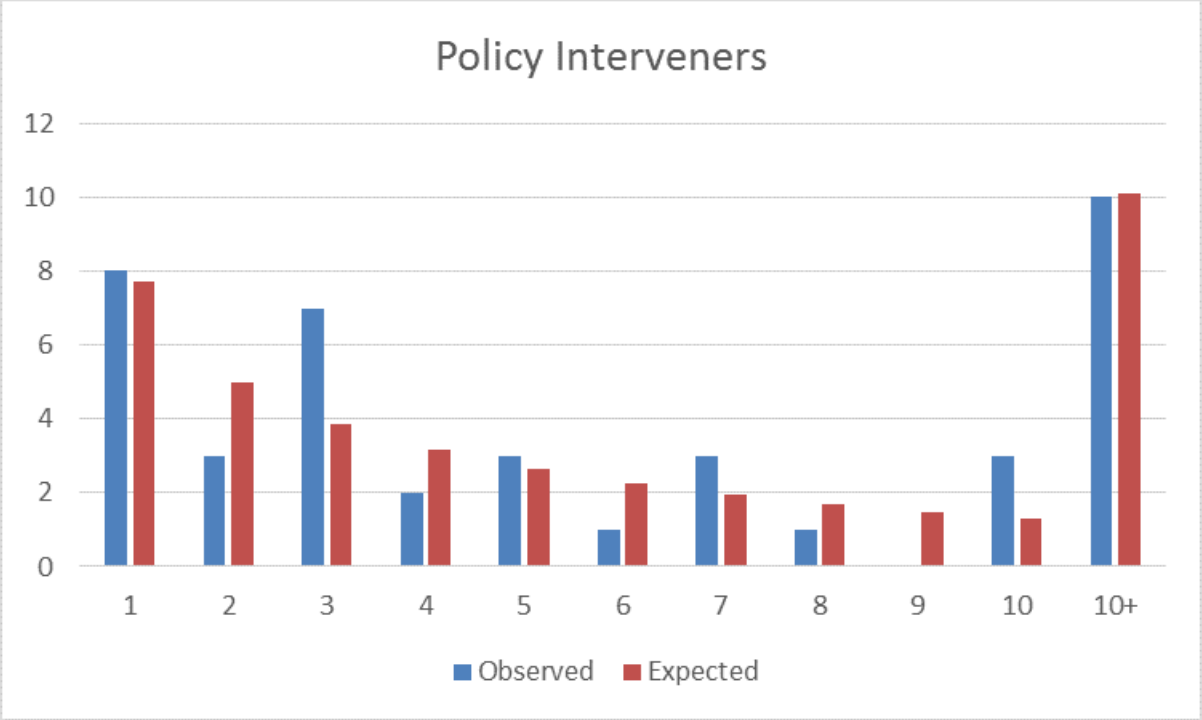

Figure 5: Histogram of Policy Interveners

policy interveners has a very fat tail; the number of interveners who have done so 10+ times is large relative to the subpopulation. The histogram for non-policy interveners tells the opposite story. Non-policy interveners conduct much fewer interventions, and far more weight is around 1 - 2 interventions.

	Policy against Pooled
Df	2
Chi	4.095
p	0.129

Table 5: Likelihood Ratio Test Results for Policy Interventions

Curiously, the fit on policy interveners is worse than expected. This may be due the choice of cut-off for classifying a policy intervener. Many states hovered around the cut-off proportion. For example, the United States clocked in at 49%, disqualifying it as a policy intervener despite its many policy wars. And 10 states were at exactly 50%, resulting in their classification as non-policy interveners on a purely technical basis. More accurate measures for classifying policy interveners, for example by considering the absolute number of interventions, may improve classification decisions and lead to a better fit; however, these fixes are still based on arbitrary decisions.

Interesting as well is the failure to reject the null at a significance level of 0.05. Thus, it might be the case policy interveners and non-policy interveners are not distinct subpopulations with different parametric specifications.

That the fit and parametric estimates here are different from those found in partitioning by strategic interventions may also stem from the inward-facing nature of states. That is, prospective interveners evaluate their own gains prior to intervention; hence, they are more likely to intervene when it's necessary to maintain regional balances of power—as occurred during 19th and 20th century Europe—or when it's desirable to assert ideological (religious, theological or politco-economic) claims. All these are strategic objectives. It's far harder, however, to guarantee advantages to one's state by changing the polices of another nation.

Partition by Size of Intervention

Finally, we want to understand high-frequency interveners through partitioning on the size of their intervention. That is, we factor in the maximum number of troops a state has ever sent in an intervention. Classification is as below. Note also that we preprocessed the data to treat all interventions where the number was unascertained as 1 - 1000.

Classification	Max Troops
Group 0	none
Group 1	1-1000
Group 2	1001-5000
Group 3	5001-10,000
Group 4	10,000+

Table 6: Classification by Size of Intervention

This classification grants us a proxy for the military size and logistics capacity of a state. The higher the group classification, the more resourceful and prepared a state is to militarily intervene, and the more committed it is to interventions. We expect that a group 4 intervener will also intervene more frequently at smaller scales, whereas a group 1 intervener is probably limited in both size and frequency. Hence we expect a higher r for higher group classifications.

Once again, our suspicions are confirmed. Higher group classification does correspond with higher r, with the exception for group 4, which saw α shrink instead. We do observe however that the average number of interventions increase monotonically with group number, reaching almost 15 by group 4.

The histograms tell a similar story. As we progress up the group numbers, the weight is gradually shifted from the left towards to the right, which indicates an increasing propensity to intervene.

Group 4 countries have demonstrated a willingness to exert massive force against another nation; this willingness generally translates into a high propensity to intervene

	Group 0	Group 1	Group 2	Group 3	Group 4
n	5	58	29	9	33
λ	1				
α		0.578	0.643	0.561	0.064
r		0.708	3.398	3.615	0.951
LL	-5	-88.367	-69.199	-20.154	-59.251
Chi	8.59	7.771	5.888	4.757	1.723
Df	8	8	8	8	8
p	0.378	0.456	0.660	0.783	0.988
mean	1	1.224	5.283	6.435	14.837

Table 7: Output of NBD Model by Size of Intervention

	Size against Pooled
Df	7
Chi	88.666
p	< 0.0001

Table 8: Likelihood Ratio Test Results for Size of Intervention

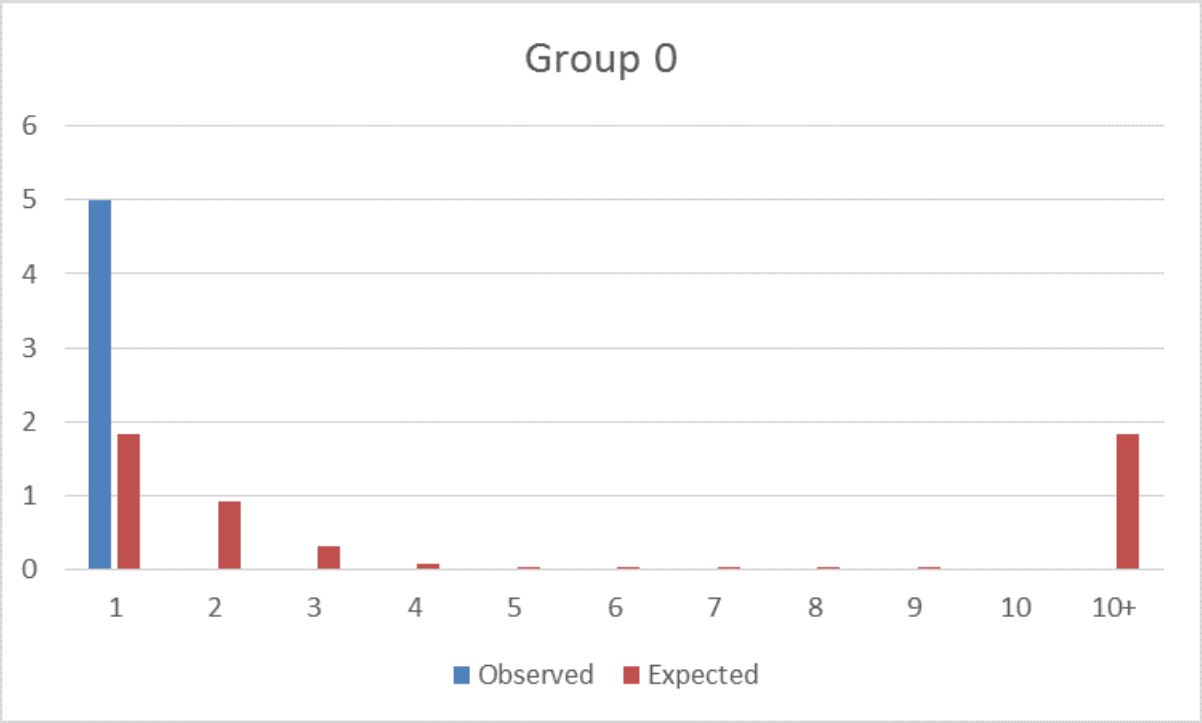

Figure 6: Histogram of Group 0

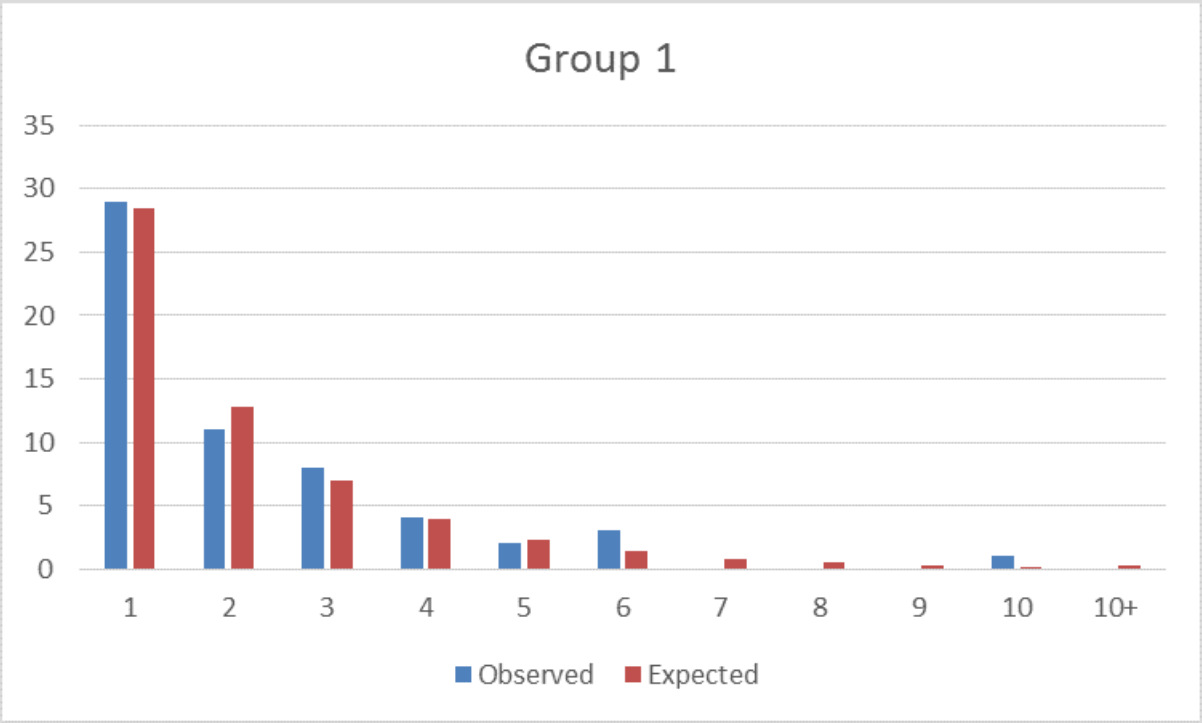

Figure 7: Histogram of Group 1

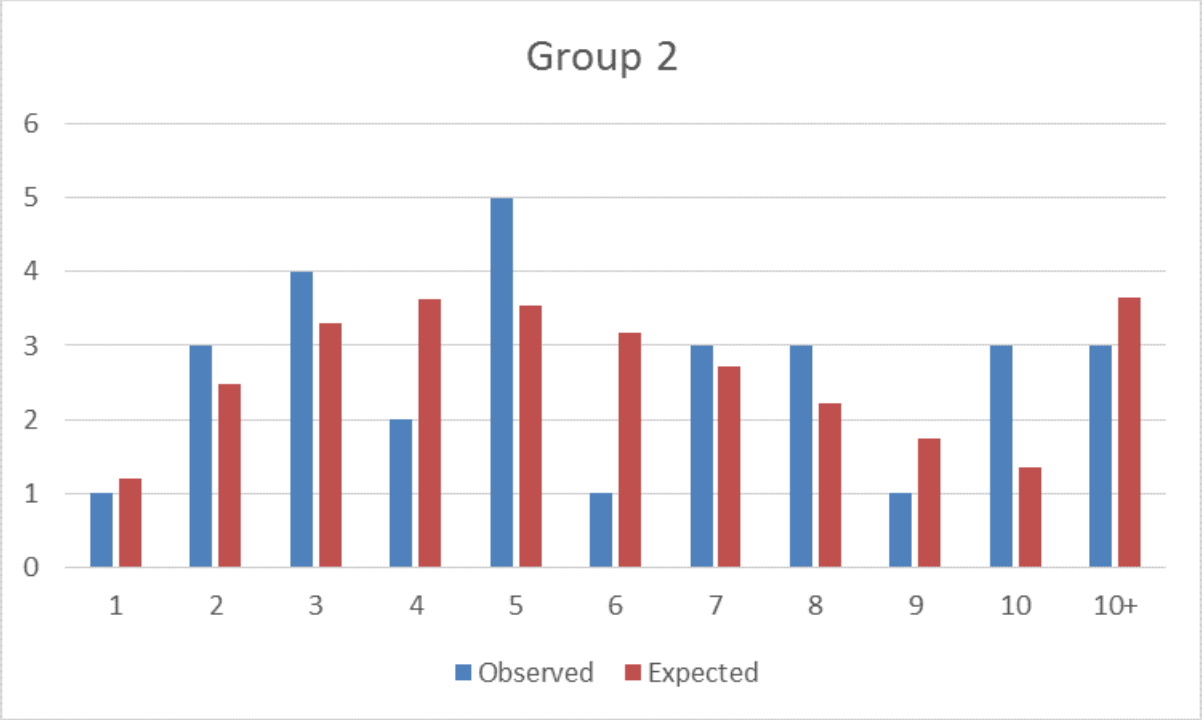

Figure 8: Histogram of Group 2

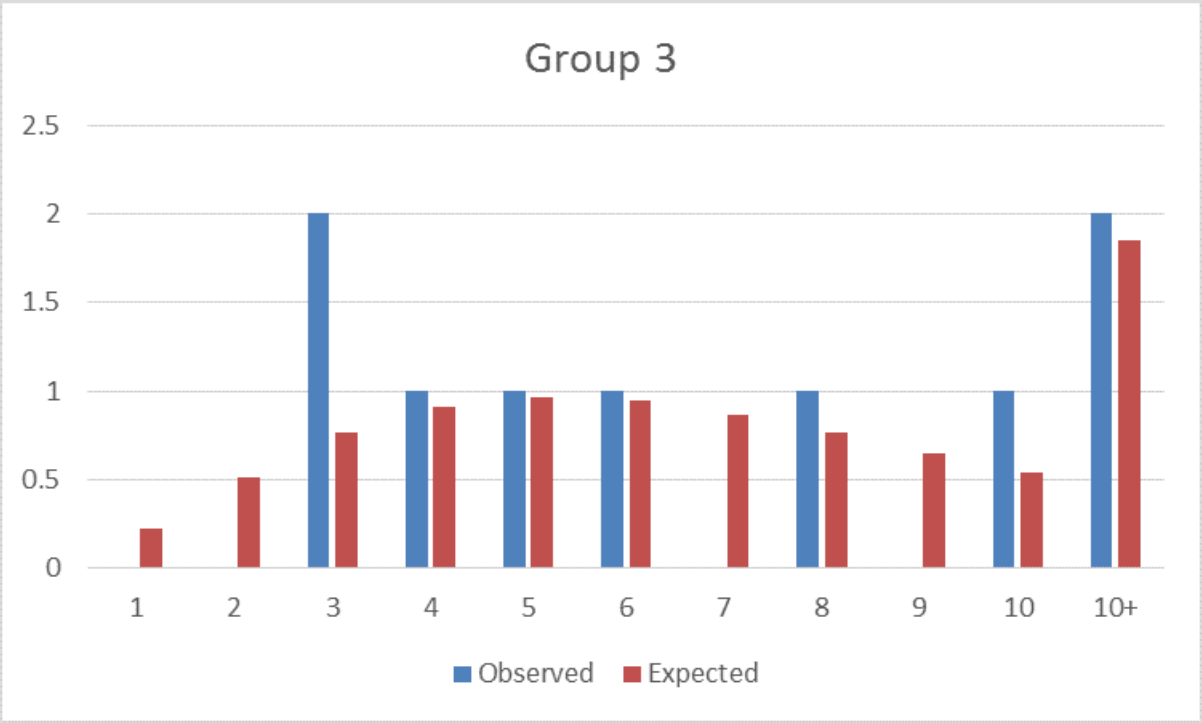

Figure 9: Histogram of Group 3

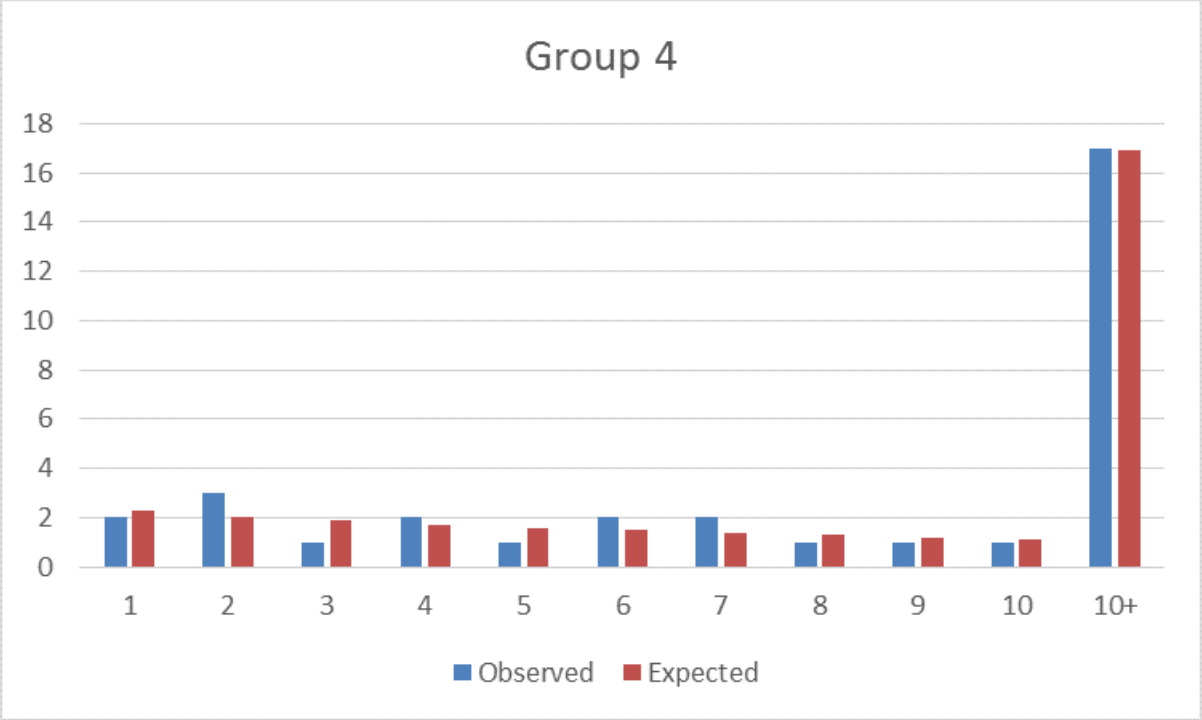

Figure 10: Histogram of Group 4

militarily. Examination of the histogram shows this is clearly the case. The number of occurrences of 10+ interventions tower over the rest of the histogram for group 4 states.

The likelihood ratio test confirms that partitioning our pool of states into five disjoint subsets was a sensible choice. We reject the null that our segments have the same parametric specification and thus underlying propensity as the pooled data. Their underlying propensities to intervene are sufficiently different to warrant the use of 7 more parameters to obtain a more granular understanding of group behavior.

Discussion

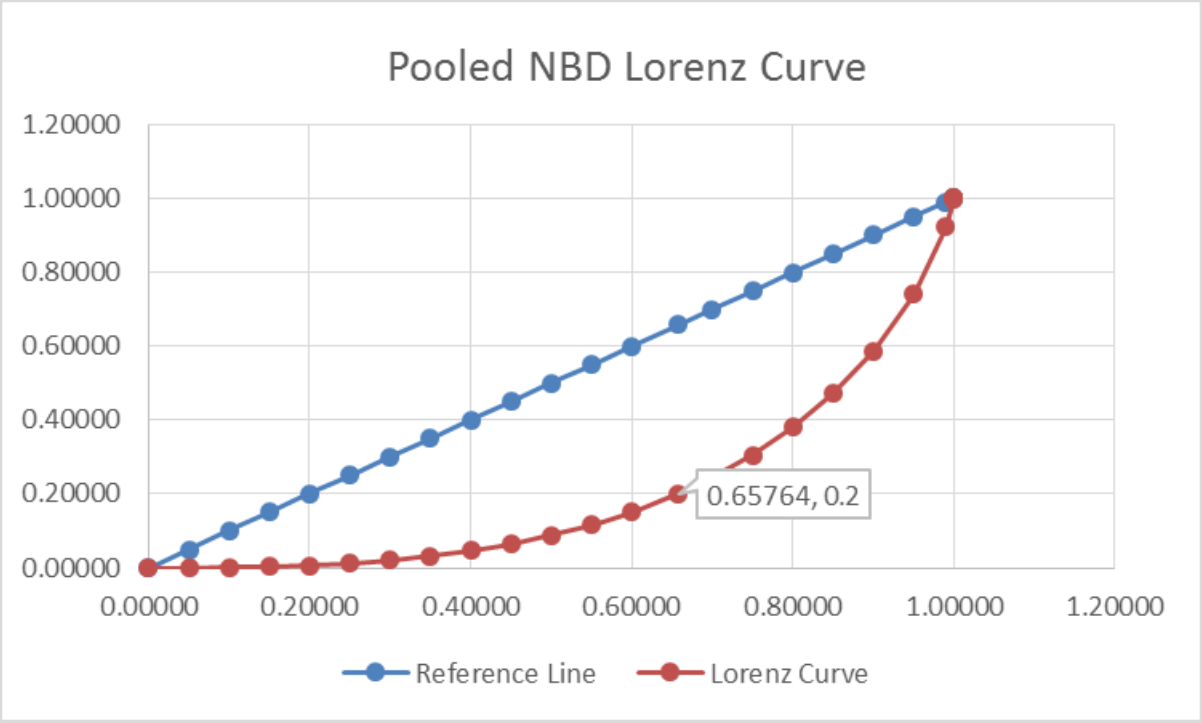

Figure 11: Lorenz Curve using Pooled NBD Model

We have found the source of the heterogeneity of the propensity to intervene. States which have demonstrated a willingness to intervene for strategic or policy purposes, or which have mobilized a large number of troops, are also the ones with a higher

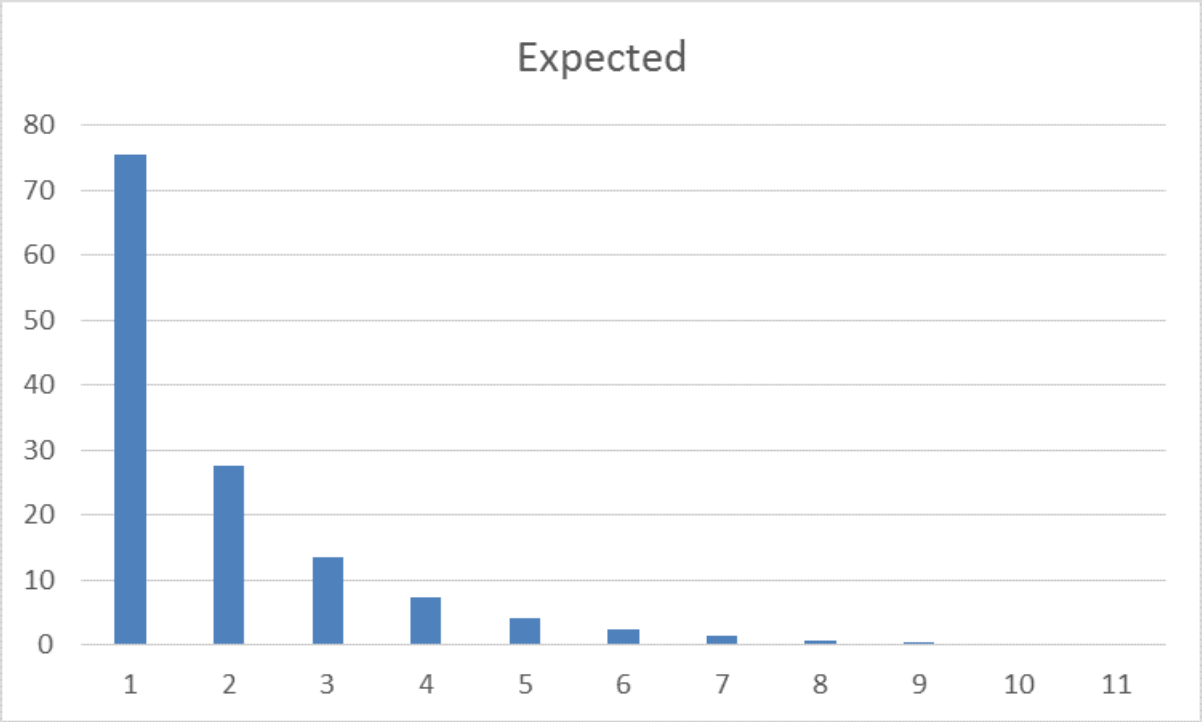

Figure 12: Projected Intervener Behavior over Next Decade

propensity to intervene overall.

Examination of the Lorenz curve using the pooled NBD model is informative. We find that 80% of all interventions are conducted by approximately 46 states out of 134. Non-stationarity, different windows of observations and a lack of testing data not withstanding, it's interesting to make predictions regarding expected numbers of interventions going forward. Our pooled NBD model predicts 265 interventions over the next decade. This is with the assumption that countries outside of our dataset will not conduct any military interventions.

Conclusion and Next Steps

Our results suggest that Clausewitz was right. Our models show that military excursions are just another channel for the exertion of political influence. We find that states who frequently intervene for strategic purposes (strategic interveners) and states

who frequently intervene to effect policy change (policy interveners) conduct a much greater number of interventions on average and have higher propensities for intervention. This same is true for states who have conducted massive military incursions (10,000+ troops).

Next steps in this research include factoring in the participation of states in international peacekeeping forces, UN missions under its various branches, and in regional coalitions such as NATO, OAS and the Arab League. These indirect channels for the exertion of strategic and policy objectives will improve our understanding of states' military intervention behavior.

As well, given the number of nation-states for each year, we can construct a dataset that explicitly factors in the number of states which did not militarily intervene in each year. As matters stand, this data is not easily found, and we are not equipped to deal with different windows of observation. We will leave this more advanced later analysis to later projects.

Appendix

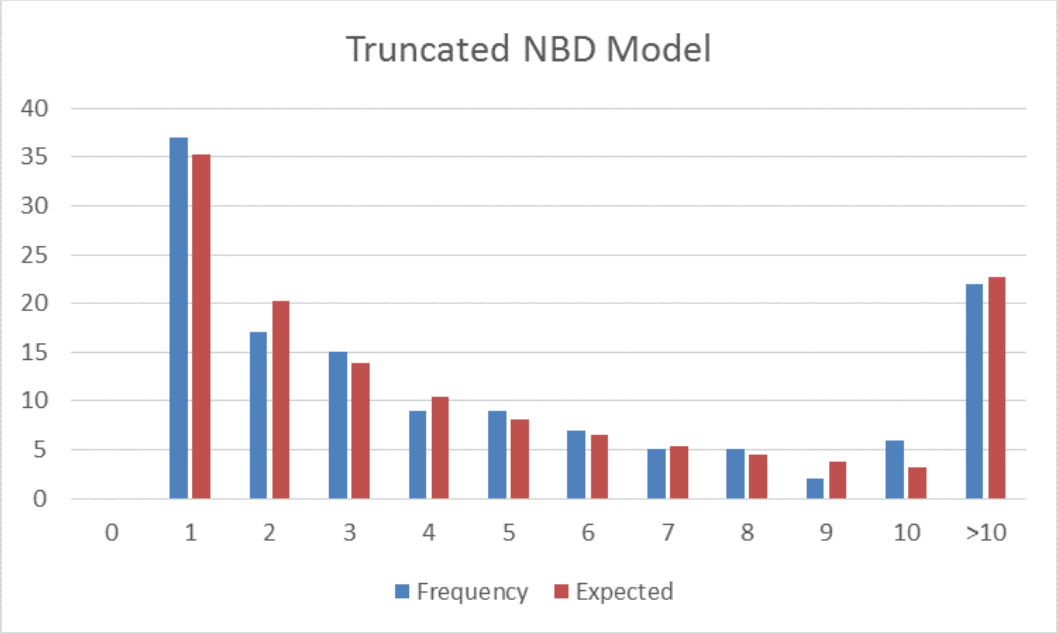

Figure 13: Histogram of Truncated NBD Model

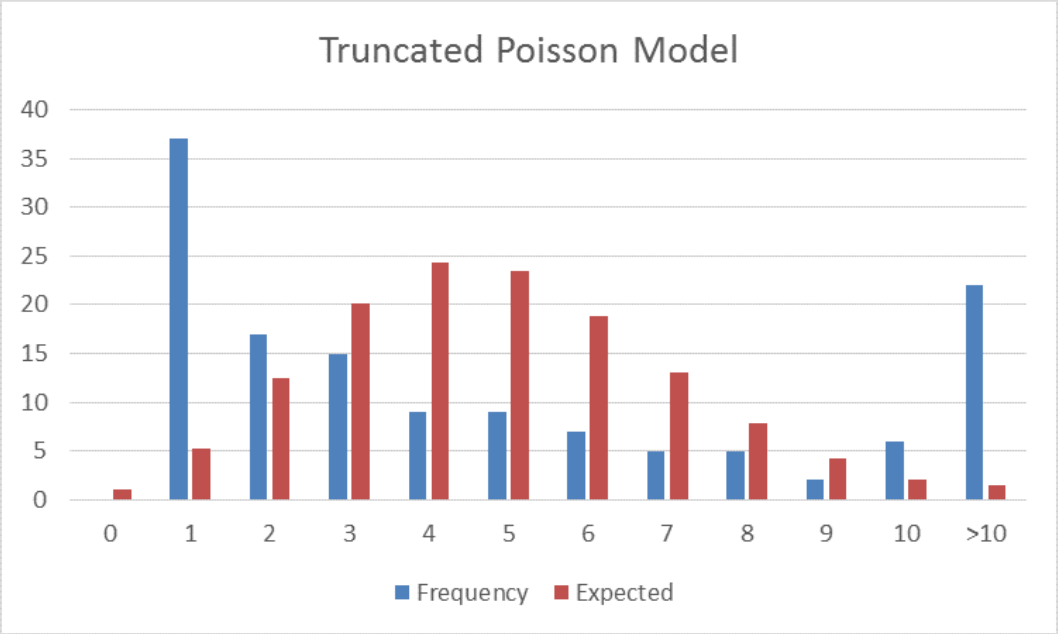

Figure 14: Histogram of Truncated Poisson Model

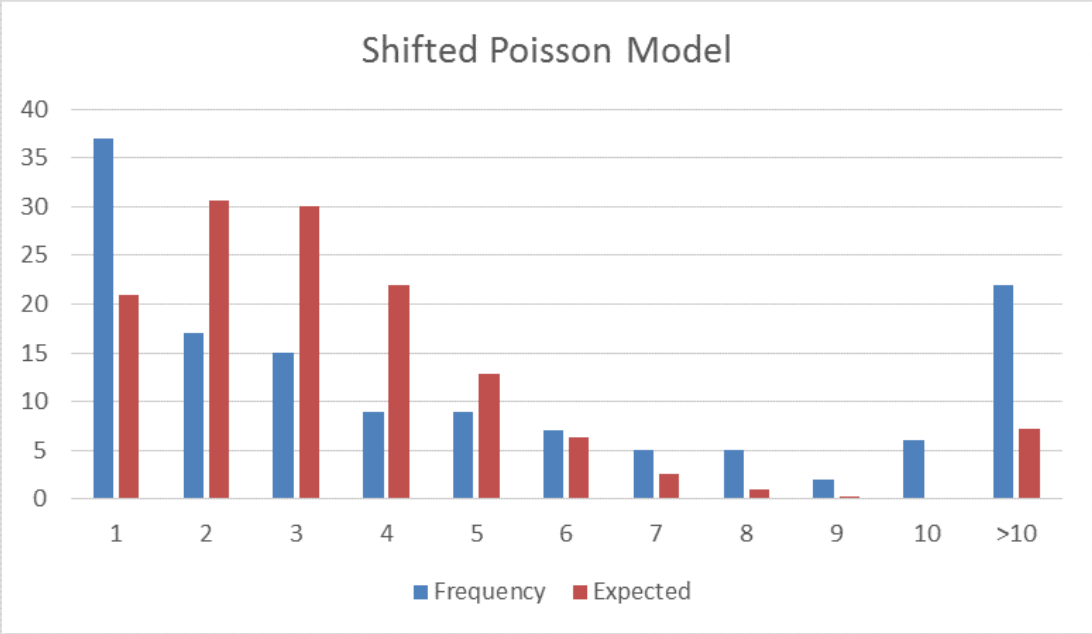

Figure 15: Histogram of Shifted Poisson Model

Table 9: Example Raw Data

	intervener	amount	affect_policies	strategic
1	200	4	0	1
2	220	1	0	9
3	365	4	0	1
4	220	9	1	1
5	220	9	1	1
6	211	4	1	1
7	345	1	1	9
8	345	1	1	9
9	200	2	9	1
10	663	1	1	9
11	220	9	1	1
12	200	0	1	9
13	390	2	1	1
14	385	2	1	1
15	2	1	1	0
16	712	1	1	9
17	1	1	1	0
18	750	2	1	9
19	750	2	0	1
20	1	1	1	1
21	93	1	0	9
22	2	0	0	0

Source:
https://www.k-state.edu/polsci/intervention/
Codetables can be found on
website as well.

Table 10: Summary Statistics for Variables of Interest

Statistic	N	Min	Pctl(25)	Median	Pctl(75)	Max
amount	1,111	0	1	2	4	9
affect_policies	1,111	0	0	0	1	9
strategic	1,111	0	1	1	1	9