Replication I: US Soft Power and Foreign Policy Behavior

Data Analysis in R

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Introduction

Does US soft-power matter for the foreign policy behavior of other states? In particular, are states whose population hold positive views of US foreign policy more likely to adopt foreign policy decisions in line with US preferences? In their article *In Search of Soft Power: Does Foreign Public Opinion Matter for US Foreign Policy?*, Goldsmith and Horiuchi (2012) examine this question. They build on the influential notion of *soft power* developed by Joseph Nye (2004),[1] but further develop Nye's theory to derive testable hypotheses on the effects of public opinion on specific foreign policy decisions.

In this document, we replicate the main analyses in Goldsmith and Horiuchi (2012), focusing in particular on the descriptive analysis in Tables 1 and 2, the OLS models in Table 3 (Models 5 and 6), as well as the marginal effects plots for these models (Panel 3 in Figure 2). The next section briefly reports the two hypotheses developed in Goldsmith and Horiuchi (2012). The third section describes the data (available here) and describes the steps necessary to construct the variables for the analysis. The fourth section replicates the descriptive analysis in Tables 1 and 2, while the fifth section estimates the OLS regression models in Table 3. The sixth section, finally, produces a marginal effects plot for the regression models. In the concluding section, we summarize the results of our replication.

The hypotheses

Goldsmith and Horiuchi (2012) criticize classical soft power theory (Nye 2004) for being underspecified. In particular, they claim that the causal mechanisms linking the "currencies of soft power"–specifically the foreign public's affinity for American values, culture, and institutions (Nye 2004)–to actual foreign policy outcomes are unclear (Goldsmith and Horiuchi 2012, 556). They thus propose to see these as underlying structural factors which shape the way in which foreign publics form *views about current US foreign policy* (Goldsmith and Horiuchi 2012, 558). This is their core independent variable.

Goldsmith and Horiuchi (2012) formulate two hypotheses. First, they hypothesize that

Hypothesis 1: "**[p]ublic opinion about US foreign policy in other countries affects the foreign policies of those countries toward the US**" (Goldsmith and Horiuchi 2012, 560).

and that

Hypothesis 2: "**[t]he effect of public opinion about US foreign policy in other countries on foreign policy decisions relevant for the US will be most evident when the issue at stake is salient for the mass publics in the those countries**" (Goldsmith and Horiuchi 2012, 560–61).

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[1] Note that Joseph Nye passed away on 6 May 2025.

The data

The data are available as a STATA `.dta` file on GitHub. I downloaded the data set (called `data_2011-07-26.dta`) and read it into R using the `read_dta()` function from the `haven` package. The data set has 28 variables with 225 observations. Table **??** lists all variables and presents summary statistics (note that non-numerical variables are excluded).

Table 1: Summary statistics

	n	mean	sd	min	max
ccode	225	471.15	264.03	2.00	1002.00
nonnat1	216	0.05	0.21	0.00	1.00
nonnat2	216	0.06	0.24	0.00	1.00
nonnat3	216	0.07	0.26	0.00	1.00
pos1	43	28.17	15.08	4.98	74.12
pos2	37	24.24	15.69	7.00	79.00
pos3	42	22.90	15.48	4.00	82.00
neg1	43	40.36	14.11	14.21	65.93
neg2	37	45.00	14.52	1.00	71.00
neg3	42	40.69	14.82	3.00	70.00
troops_iraq	216	2462.74	31915.77	0.00	466985.00
article98	216	0.28	0.45	0.00	1.00
unvoting	190	34.59	23.20	0.00	91.67
troops_afgh	216	97.17	535.61	0.00	5000.00
icc	216	0.41	0.49	0.00	1.00
s_lead	191	0.47	0.18	0.17	1.00
nato	225	0.08	0.28	0.00	1.00
aid_m	216	2.62	24.85	0.00	361.07
aid_e	216	4.15	11.13	0.00	128.00
lntrade	179	-3.10	1.31	-7.44	-0.11
lngdppc	156	8.47	1.34	5.50	11.09
pr	192	3.36	2.16	1.00	7.00
cl	192	3.39	1.82	1.00	7.00
muslimpct	225	0.21	0.35	0.00	1.00
europe	225	0.07	0.26	0.00	1.00
keep	58	1.00	0.00	1.00	1.00

While there is no formal codebook, the variable names and descriptive statistics, together with the description of variables in the article give a fairly clear picture of what most variables are.

- `ccode` is the Correlates of War country code, an arbitrary numerical code assigned to countries;
- `nonnat1`, `nonnat2`, and `nonnat3` appear to be indicator variables for whether the survey in question employed a non-national (i.e., urban) sample;
- `pos1`, `pos2`, and `pos3` are the percentage of respondents expressing positive views on US foreign policy;
- `neg1`, `neg2`, and `neg3` are the percentage of respondents expressing negative views on US foreign policy;
- `troops_iraq` is the number of troops committed to Iraq by a country;
- `article98` is an indicator variable code 1 if a country signed an agreement with the US exempting US personnel from the jurisdiction of the ICC (Goldsmith and Horiuchi 2012, 568);
- `unvoting` is the proportion of important UNGA resolutions in 2003 on which the country voted the same as the US (Goldsmith and Horiuchi 2012, 570);
- `troops_afgh` is a control variable with the number of troops committed to Afghanistan;
- `icc` records whether a country has signed the Rome statute establishing the ICC;
- `s_lead` likely is the "alliance portfolio" control variable (Goldsmith and Horiuchi 2012, 575);
- `nato` is an indicator variable for NATO membership;
- `aid_m` and `aid_e` is the per capita amount of US military and economic aid to a country in 2002 (Goldsmith and Horiuchi 2012, 575);
- `lntrade` is the natural logarithm of the total trade volume with the US divided by GDP (Goldsmith and Horiuchi 2012, 575);
- `lngdppc` is the natural logarith of GDP/capita;
- `pr` and `cl` are the Freedom House political rights and civil liberty scores, respectively;
- `muslimpct` is the ratio of Muslims to the total population;
- `europe` is an indicator for whether the country is in Western Europe (Goldsmith and Horiuchi 2012, 575);
- `keep` is unclear (but seems to be an internal variable which is, in fact, constant at 1).

Variable construction

The main independent variable needs to be constructed. Goldsmith and Horiuchi (2012) describe it as the "difference between the aggregated (in ratio) positive and negative response" (Goldsmith and Horiuchi 2012, 563) to the survey item:

> Generally, do you think American foreign policy has a positive effect on <your country>, a negative effect or does American foreign policy have no effect on <your country>? (Goldsmith and Horiuchi 2012, 563)

I call this main independent variable of interest `fp_views`. It has a mean of -0.14, a standard deviation of 0.27, and ranges from -0.56 to 0.78. This is consistent with Tables 1 and 2 in the

article (Goldsmith and Horiuchi 2012, 572–73), suggesting that the variable was constructed correctly.

We also need an indicator variable coded 0 if a country did not send troops to Iraq and 1 otherwise (`iraq_dummy`), and the same for troops committeed to Afghanistan (`afg_dummy`). There are 36 countries which sent troops to Iraq and 22 which committed troops to Afghanistan. We also combine the two Freedom House scores to create a new variable (`fh`). This variable has a mean of 6.75, a standard deviation of 3.92, and ranges from 2 to 14. Finally, we create a `nonnat` variable which is 1 if any of the three surveys going into the `fp_views` variable employed a non-national sample. 10.19% of all countries include at least one non-national sample.

Descriptive analysis

Goldsmith and Horiuchi (2012) begin their analysis with a descriptive comparison of their main variables of interest across two groups of countries, classified by their values on the `fp_views` variable. We reproduce these tables here.

Table 2: Observations, below the Median of Causal Variable

Country	Opinion about US Foreign Policy	Sent Troops to Iraq in 2003	BIA Entered into Force in 2003	UN Voting with US in 2003
France	-0.560	0.000	0.000	0.667
Vietnam	-0.560	0.000	0.000	0.000
Turkey	-0.524	0.000	0.000	0.333
Argentina	-0.505	0.000	0.000	0.417
Switzerland	-0.458	0.000	0.000	0.583
Russia (Soviet Union)	-0.437	0.000	0.000	0.417
Serbia and Montenegro	-0.430	0.000	0.000	0.667
Ecuador	-0.420	0.000	0.000	0.500
Netherlands	-0.401	1.000	0.000	0.667
Uruguay	-0.390	0.000	0.000	0.417
Spain	-0.371	1.000	0.000	0.667
Greece	-0.370	0.000	0.000	0.667
Korea, South	-0.363	1.000	0.000	0.500
Japan	-0.355	0.000	0.000	0.583
Germany	-0.346	0.000	0.000	0.667
Bosnia-Herzegovina	-0.307	0.000	1.000	0.583
Brazil	-0.303	0.000	0.000	0.417
Pakistan	-0.301	0.000	1.000	0.167
Austria	-0.300	0.000	0.000	0.667

Table 2: Observations, below the Median of Causal Variable *(continued)*

Country	Opinion about US Foreign Policy	Sent Troops to Iraq in 2003	BIA Entered into Force in 2003	UN Voting with US in 2003
Canada	-0.289	0.000	0.000	0.583
Malaysia	-0.288	0.000	0.000	0.167
Bolivia	-0.287	0.000	0.000	0.500
Finland	-0.282	0.000	0.000	0.667
Macedonia	-0.268	1.000	1.000	0.727
Norway	-0.257	1.000	0.000	0.667
Luxembourg	-0.239	0.000	0.000	0.667
Sweden	-0.238	0.000	0.000	0.667
Indonesia	-0.223	0.000	0.000	0.250
New Zealand	-0.220	1.000	0.000	0.583
Mean	-0.355	0.207	0.103	0.519
St. Dev.	0.098	0.405	0.305	0.183

Table 3: Observations, above the Median of Causal Variable

Country	Opinion about US Foreign Policy	Sent Troops to Iraq in 2003	BIA Entered into Force in 2003	UN Voting with US in 2003
India	-0.193	0.000	1.000	0.250
Australia	-0.160	1.000	0.000	0.833
Denmark	-0.158	1.000	0.000	0.667
Italy	-0.151	1.000	0.000	0.667
Cameroon	-0.147	0.000	1.000	0.250
United Kingdom	-0.137	1.000	0.000	0.667
Bulgaria	-0.116	1.000	0.000	0.667
Guatemala	-0.069	0.000	0.000	0.417
Uganda	-0.015	0.000	1.000	0.167
South Africa	-0.012	0.000	0.000	0.167
Portugal	-0.006	1.000	0.000	0.667
Lithuania	0.000	1.000	0.000	0.667
Kenya	0.005	0.000	0.000	0.167
Iceland	0.018	1.000	0.000	0.667
Ireland	0.031	0.000	0.000	0.667
Estonia	0.035	1.000	0.000	0.667
Poland	0.049	1.000	0.000	0.667

Table 3: Observations, above the Median of Causal Variable *(continued)*

Country	Opinion about US Foreign Policy	Sent Troops to Iraq in 2003	BIA Entered into Force in 2003	UN Voting with US in 2003
Latvia	0.070	1.000	0.000	0.667
Nigeria	0.091	0.000	1.000	0.250
Croatia	0.118	0.000	0.000	0.667
Colombia	0.167	0.000	1.000	0.417
Rumania	0.171	1.000	0.000	0.667
Costa Rica	0.172	0.000	0.000	0.500
Georgia	0.172	1.000	1.000	0.500
Panama	0.204	0.000	1.000	0.417
Peru	0.249	0.000	0.000	0.500
Philippines	0.370	1.000	1.000	0.250
Dominican Republic	0.387	1.000	0.000	0.500
Albania	0.785	1.000	1.000	0.667
Mean	0.067	0.552	0.310	0.515
St. Dev.	0.203	0.497	0.463	0.195

OLS Models

We reproduce the two OLS models (Models 5 and 6 in Table 3). The first model only includes the main independent variable (`fp_views`), while the second model also includes a battery of control variables. Goldsmith and Horiuchi (2012) find no significant effect in the base model, but do find a significant positive effect in the full model. Our models reproduce these findings.

However, the standard errors in Table 4 differ significantly from those in the original (Goldsmith and Horiuchi 2012, 577). The reason is that Goldsmith and Horiuchi (2012) use heteroscedasticity robust standard errors. They do not specifically justify this choice, but it likely is motivated by the relatively small N of 58.

Table 4: Regression Results (OLS only)

	UN Voting with US in 2003	
	(1)	(2)
Opinion on US FP	2.07	15.78***
	(9.55)	(4.97)
Troops in AFG		6.42**
		(2.91)
ICC member		2.00
		(3.32)
Alliance portfolio		10.26
		(10.19)
NATO		−5.74
		(4.38)
US military aid		0.55
		(0.50)
US economic aid		0.46**
		(0.19)
Trade with US		−4.77***
		(1.33)
GDP per capita		12.59***
		(2.19)
Democracy score		−1.14
		(0.76)
Muslim population		−2.51
		(5.64)
Europe		0.32
		(3.71)
Constant	51.98***	−81.67***
	(2.87)	(25.19)
Observations	58	58
R^2	0.001	0.86
Adjusted R^2	−0.02	0.82
Residual Std. Error	19.22 (df = 56)	8.09 (df = 45)
F Statistic	0.05 (df = 1; 56)	22.60*** (df = 12; 45)

Note: *p<0.1; **p<0.05; ***p<0.01

The residuals vs. fitted values plot in Figure 1 does not suggest major problems with heteroscedasticity. There seems to be a slightly wider spread in the middle of the fitted value
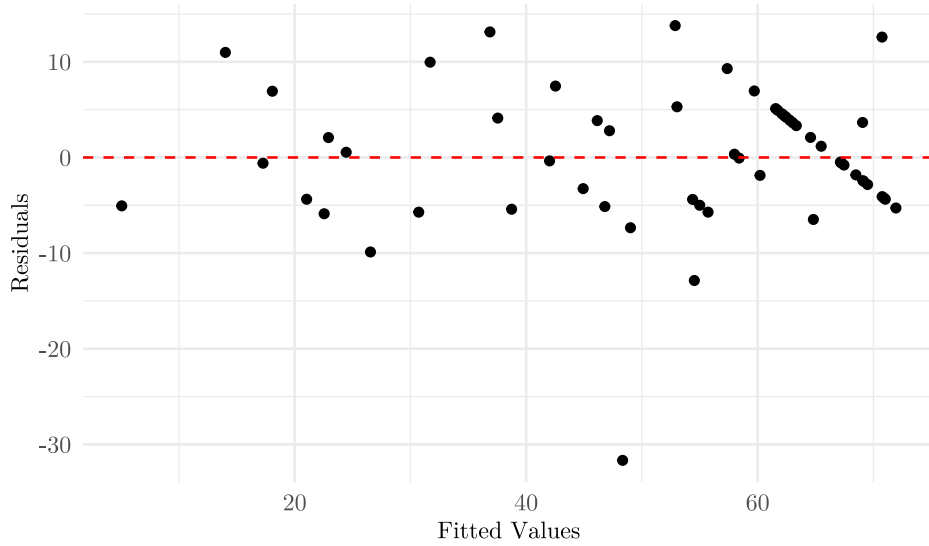
8

Figure 1: Residuals vs. Fitted Plot

range, but there are no clear patterns. In fact, a Breusch-Pagan test produces as p value of 0.5832, meaning we cannot reject the null hypothesis of homoscedasticity.

We nevertheless proceed with calculating robust standard errors. Obtaining robust standard errors is straightforward in STATA (by simply adding `, vce(robust)` to the model); in **R**, we need to calculate the robust standard errors ourselves. We first calculate a robust variance-covariance matrix (using the `vcovHC` function from the `sandwich` package). We then extract the diagonal elements from this variance-covariance matrix which represent the variance of the estimated coefficient estimates (using the `diag` function). Since standard errors are defined as the square root of the variance of the coefficient estimates, we take the square root of the diagonal values (using `sqrt`) and obtain robust standard errors.

As Table 5 below shows, this procedure recovers the same standard errors as in the original article (Goldsmith and Horiuchi 2012, 577). Including robust standard errors does not change our interpretation of the models. In fact, the only change is the level of significance in some variables. No variables lose or gain significance.

Table 5: Regression Results (OLS only, Robust SEs)

	UN Voting with US in 2003	
	(1)	(2)
Opinion on US FP	2.07	15.78***
	(9.06)	(3.62)
Troops in AFG		6.42**
		(2.71)
ICC member		2.00
		(3.49)
Alliance portfolio		10.26
		(14.01)
NATO		−5.74
		(4.02)
US military aid		0.55
		(0.37)
US economic aid		0.46***
		(0.12)
Trade with US		−4.77***
		(1.36)
GDP per capita		12.59***
		(2.12)
Democracy score		−1.14
		(0.83)
Muslim population		−2.51
		(3.82)
Europe		0.32
		(3.47)
Constant	51.98***	−81.67***
	(2.69)	(29.02)
Observations	58	58
R^2	0.001	0.86
Adjusted R^2	−0.02	0.82
Residual Std. Error	19.22 (df = 56)	8.09 (df = 45)
F Statistic	0.05 (df = 1; 56)	22.60*** (df = 12; 45)

Note: *p<0.1; **p<0.05; ***p<0.01

Marginal effects

A marginal effect measures the expected change in the dependent variable resulting from a one-unit change in an independent variable, holding all other variables constant. Following Goldsmith and Horiuchi (2012), we vary the independent variable from one standard deviation below to the mean to one standard deviation above the mean and plot the expected value of voting alignment for this range, along with 95% confidence intervals. This reproduces the third panel of Figure 2 (Goldsmith and Horiuchi 2012, 578).
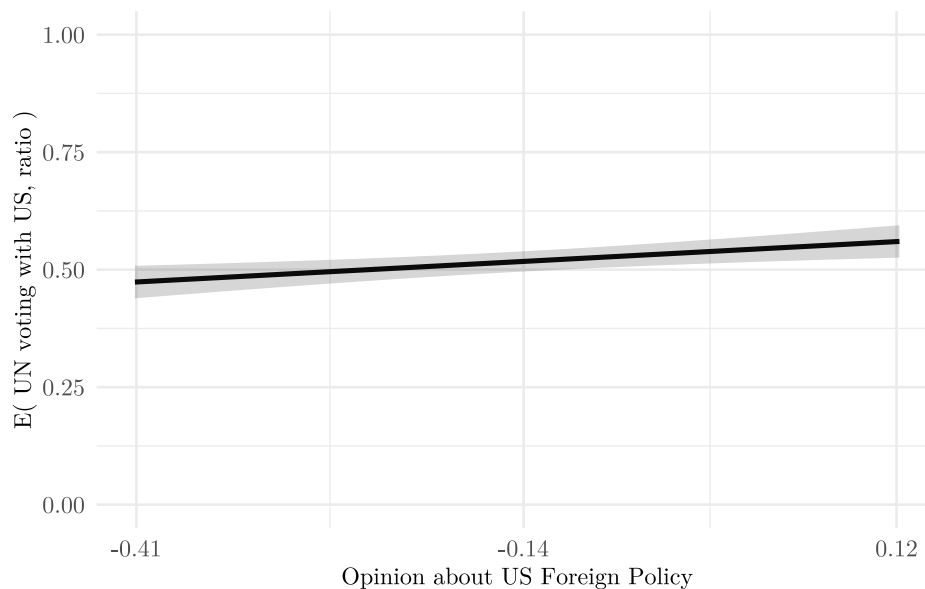

Figure 2: Marginal Effect Plot

Conclusion

We have reproduced the OLS-based analysis in Goldsmith and Horiuchi (2012), finding identical results. We obtain different estimates of the standard deviations in the descriptive analysis, yet these differences are marginal. Moreover, there is little evidence for heteroscedasticity in the initial models, so the authors' choice of calculating robust standard errors is somewhat dubious. Yet, this choice does not influence the substantive interpretation of the results.

References

Goldsmith, Benjamin E., and Yusaku Horiuchi. 2012. "In Search of Soft Power: Does Foreign Public Opinion Matter for US Foreign Policy?" *World Politics* 64 (3): 555–85. https://doi.org/10.1017/s0043887112000123.

Nye, Joseph S. 2004. *Soft Power: The Means to Success in World Politics.* New York: PublicAffairs.