

Lobbying and SOPA/PIPA

Luke Paulsen
OpenIntro
openintro.org
CC BY-SA*

1 Introduction

In late 2011, the Stop Online Piracy Act (SOPA) and the Protect Intellectual Property Act (PIPA) were introduced in the United States House of Representatives and Senate, respectively. It is generally believed that entertainment industry groups favored the proposed legislation while computer and internet industry groups were against it. Assuming that this is true, we can measure the correlation between the money these groups have spent on lobbying particular members of Congress and those members' public stances on SOPA and PIPA.

2 Data Exploration

The `piracy` data set, based on information available at propublica.org¹, reports data about the 534 U.S. Senators and Representatives at the time that SOPA/PIPA was being considered. Three rows from this data set are shown in Table 1. Each congressperson's name, party affiliation, state, chamber, and stance on the bill is recorded, along with the amount of lobbying money received from lobbyists on each side of the issue since 2008.

	name	party	state	money_pro	money_con	stance	chamber
1	Ackerman, Gary	D	NY	13350	14800	unknown	house
2	Adams, Sandra	R	FL	3500	5650	unknown	house
:	:	:	:	:	:	:	:
534	Wyden, Ron	D	OR	67200	189350	no	senate

Table 1: Three rows from the `piracy` data set.

We first consider the party and stance variables. For simplicity, we exclude undecided or unknown voters, independents, and members for whom data on lobbying money is not available. The resulting data is summarized in Table 2 and Figure 3.

Next, we introduce lobbying contributions, which are divided into two categories: those by industries that favor SOPA/PIPA (`money_pro`) and those by industries opposed to the bills (`money_con`).

*This document is released under a Creative Commons Attribution-ShareAlike 3.0 license.

¹These data may also be downloaded at openintro.org or as part of the R package, `OIdata`, on CRAN.

	Yes	No	Leaning No
Democrat	38	53	16
Republican	19	62	28

Table 2: Contingency table for **party** and **stance** after eliminating Congress members whose stance was undecided or unknown. The independent senator from Vermont (Bernie Sanders) was also excluded.

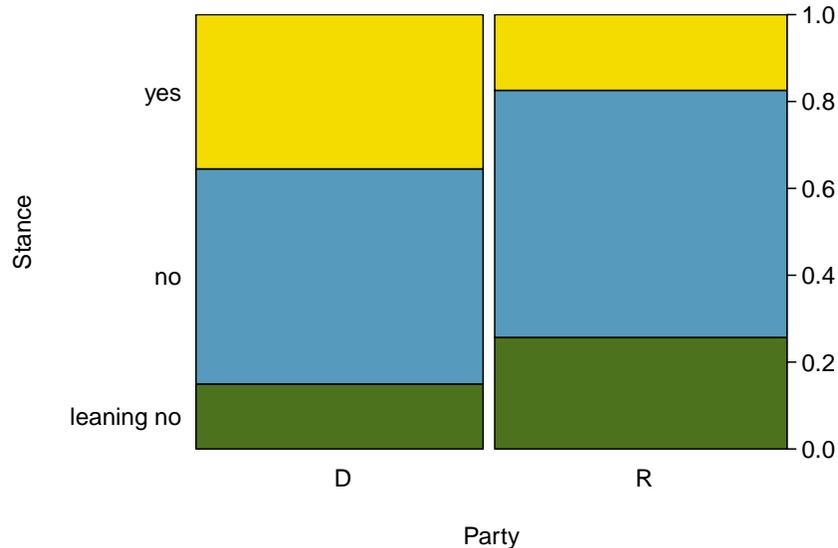


Figure 3: Mosaic plot of party and stance.

These variables are presented and summarized in Figure 4 and Table 5.

3 Analysis

We will consider the correlation between position and lobbying contributions, but first we consider the relationship between party and stance. Running a chi-squared test using Table 2, we find strong statistical evidence (p-value < 0.01) that party and stance are not independent.²

Next we consider the correlation of a congressperson’s stance on SOPA/ PIPA with the lobbying money he or she received from industries for or against the bill. The obvious expectation would be that the “pro” voters (planning to vote yes) receive more money from “pro” lobbyists and the “con” voters (planning to vote no or were leaning no) receive more money from “con” lobbyists. However, any significant difference between the two groups would be interesting, so we use two-sample hypothesis tests to determine whether there are differences.³ The data for these tests are presented in Table 6.

²Independence for these data is somewhat difficult to assess, but there is little reason to believe that the independence would not be an unreasonable assumption in a first analysis.

³Histograms of `money_pro` and `money_con` show these variables are very strongly skewed (see Figure 4). The sample sizes are moderately sized, suggesting the analyses that is performed is reasonable. However, a more complete analysis may include simulations to determine whether the sample sizes are adequate for such strong skew.

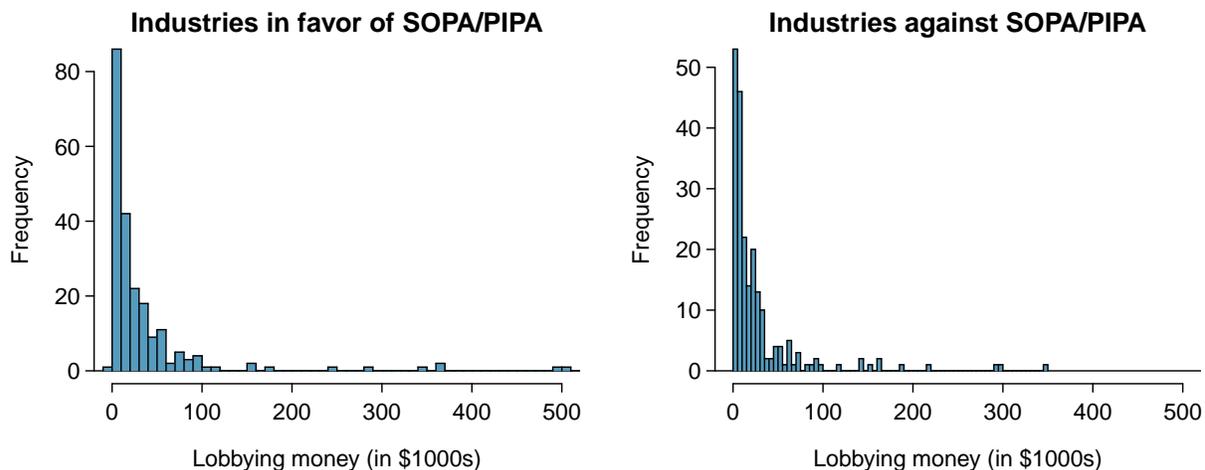


Figure 4: Histograms of the `money_pro` and `money_con` variables, which report lobbying money by the industries for and against SOPA/PIPA.

	<code>money_pro</code>	<code>money_con</code>
Mean	37,837	27,831
Median	13,525	11,666
St. Dev.	78,803	47,984
IQR	31,229	21,412
Minimum	-5,000	500
Maximum	571,600	348,691

Table 5: Summary statistics for the `money_pro` and `money_con` variables, which report lobbying money in dollars by the industries for and against SOPA/PIPA.

	Pro Money			Con Money	
	Yes	(Lean) No		Yes	(Lean) No
Mean	88,141	19,804	Mean	46,333	21,198
St. Dev.	135,019	27,364	St. Dev.	76,443	29,904
Samp. Size	57	159	Samp. Size	57	159

Table 6: Summary statistics for lobbying money contributions. The left table represents money from industries in favor of SOPA/PIPA bills, and those on the right summarize lobbying money from industries against the bill. Each summary is broken down by the stance.

	Sample Size	Mean	Median	St. Dev.	IQR	Minimum	Maximum
Yes	57	41,808	13,650	67,252	56,200	-16,300	222,909
No, Leaning No	159	-1,394	250	33,551	14,428	-141,185	241,000

Table 7: Summary statistics for the net lobbying money favoring SOPA/PIPA.

We find that in *both* cases the average amount of money given to pro-SOPA/PIPA voters was greater (both p-values < 0.05). The surprising result is that SOPA/PIPA supporters received *more* lobbying money from industries opposed to SOPA/PIPA than did the bill’s actual opponents.

A more comprehensive analysis could consider the net contribution of lobbyist money in favor of or against the bills. We can define the *net lobbying money* of a member of Congress to be the amount of money he or she received from the bill’s supporters, minus the amount of money he or she received from its opponents. These differences are summarized in Table 7 and Figure 8. As before, we perform a hypothesis test to see if the net lobbying contribution in favor of the bills is different among supporters and opponents. We find that the difference is statistically significant (p-value < 0.01), meaning that higher net lobbying contributions are correlated with SOPA/PIPA support. While the data include many outliers, the sample sizes are probably sufficiently large for conditions to be reasonably satisfied.

The difference in net lobbying money for Yes and No/Leaning No voters, however, does not necessarily imply that lobbying money was responsible for voting behavior. For example, party affiliations are not typically thought to be influenced by lobbying money, but when running a similar analysis with party affiliation, we get similar results (p-value = 0.052).

Political party is a confounding variable: it is associated with both the lobbying money received and voting stance. To compensate for this effect in our analysis of lobbying on SOPA/PIPA, we can model the net lobbying money received based on both stance and party affiliation using a multivariate model, which is summarized in Table 9. In this model, the net lobbying money favoring the bill is the outcome variable, and two indicator variables, one for the member being Republican and the other for a stance against SOPA/PIPA, are used as explanatory variables. After compensating for the possible effects of party affiliation on sources of lobbying money, there is still strong statistical evidence that a stance of Yes rather than No or Leaning No is correlated on average with receiving more net lobbying money. Additionally, after accounting for stance, political party is no longer statistically significant in predicting net lobbying contribution.

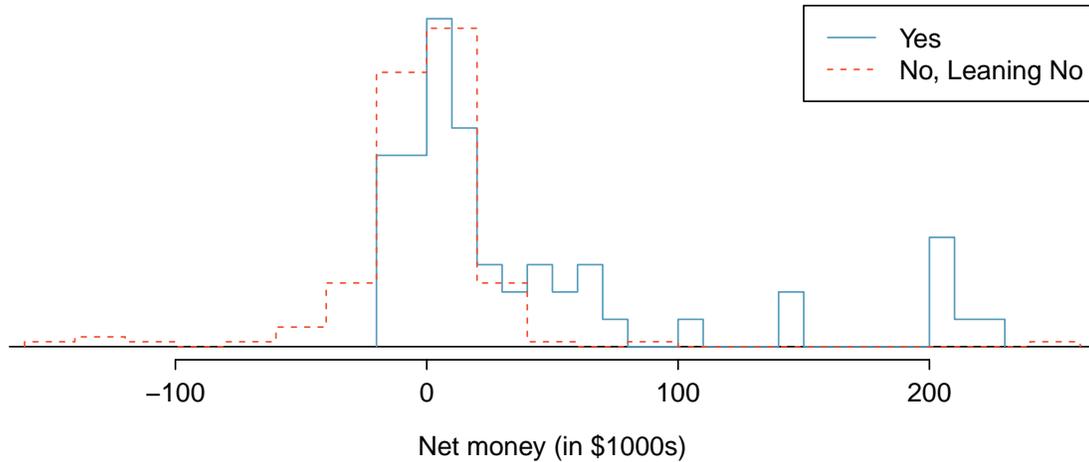


Figure 8: Histogram of the net contribution to each congressperson favoring SOPA/PIPA.

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	43.6070	6.3024	6.92	0.0000
Party_Rep	-5.3980	6.2448	-0.86	0.3883
Stance_Against	-41.9458	7.0841	-5.92	0.0000

Table 9: Results from a multivariate regression model with `net_money` as an outcome variable. The `Party_Rep` is an indicator variable for the congressperson being a Republican, and `Stance_Against` is an indicator variable for having a stance against SOPA/PIPA.

4 Conclusion

While these results do not establish causation, they do show a strong correlation between the balance of lobbying influence, as measured by the money spent by each type of industry, and the decision to vote for or against a bill. They also indicate that party membership is, after accounting for stance, not statistically significant in predicting net lobbying contributions.

Several additional aspects may be further investigated. One might specially consider members whose position differ from the majority stance of their party, each member's chamber may also be related to the funds received, and we could investigate whether grouping the No and Leaning No members was reasonable. These topics, and others, may play a role in a comprehensive investigation.