Of Shirking, Outliers, and Statistical Artifacts:
Lame-Duck Legislators and Support for Impeachment

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Abstract

It has been previously argued that there is substantial evidence that lame-duck Republican members of Congress were less supportive of the impeachment of Bill Clinton than their colleagues who returned in the 106th Congress. I show that this conclusion—based on a marginally-significant interaction term—is actually the result of two statistical artifacts: the choice of estimator used, and the inclusion in the model of five Democratic representatives who voted for some of the articles of impeachment—most notably, Paul McHale of Pennsylvania, the only lame-duck Democrat who supported impeachment. Using the ordered logit estimator (instead of ordered probit, as was previously used), estimating the model with only Republican members included, or excluding an outlier among the Democrats results in the effect becoming statistically insignificant. The long-term evidence of shirking by impeachment supporters is also very limited. On balance, the evidence suggests that retiring Republicans did not engage in shirking when making decisions on whether to vote for impeachment.

There can be no question that the issue of whether President Clinton ought to be impeached for alleged perjury, obstruction of justice, and abuse of power was among the most salient issues of recent congressional history. Over time became clear that there had been, at least, an intensive effort by the president to keep the truth about his relationship with a former intern a secret from the plaintiff in a sexual harassment lawsuit against him. Democratic members of Congress, particularly those in marginal districts, were widely characterized in the media as "running scared" at the prospect of the November 1998 congressional elections becoming a referendum on the president's legal problems. While in retrospect the issue does not appear to have affected the outcome of many congressional races,[1] there was certainly a perception at the time of the votes regarding the impeachment inquiry, particularly among Democrats who perceived that they faced difficult challengers in the upcoming election and that the president's legal problems could easily become political problems of their own. The relatively poor Republican showing in the subsequent election—the result of the first midterm gain by an incumbent president's party in living memory—led to similar speculation about the eventual fate of Republican members who supported impeachment in marginal districts.

Rothenberg and Sanders (2000a) previously examined the voting behavior of representatives on impeachment, and concluded that there was evidence that retiring Republican legislators engaged in *shirking*—in other words, that the weakening of the ties between representatives and the electorate led retiring legislators to vote more inconsistently with constituency preferences than those who remained in Congress. Evidence of shirking in the contemporary Congress has been relatively hard to come by; hence, this result is of great interest to scholars who believe that it does take place.

However, the evidence supporting this finding appears to be flawed in a number of ways. First and foremost, the choice of estimator used has a substantial impact on the statistical significance of the results—in other words, the finding is not robust across the set of appropriate estimators for their statistical model. It also appears that their finding of shirking among *Republicans*

[1] However, Abramowitz (2001) argues the scandal did affect the aggregate outcome of the 1998 House elections.

is the result of a *Democratic* outlier who supported impeachment, Paul McHale of Pennsylvania. When the outliers are excluded—either by excluding McHale or all Democrats—the evidence supporting the conclusion that shirking took place disappears.

1 Theoretical Background

The literature on legislative voting behavior is extensive. Rothenberg and Sanders (2000a), in their previous analysis of the congressional roll call votes on impeachment, focus on three explanations for legislators' support for impeachment: the electoral connection and "shirking," constituency influence, and legislator ideology.

The theme of the electoral connection is familiar to most students of the U.S. Congress. As posited by Mayhew, members of Congress are "single-minded seekers of reelection" (1974: 5) who are primarily motivated to protect their own positions in the legislature. More importantly for this analysis, members are expected by this theory to act on behalf of their constituents' interests in Congress; accordingly, their roll call behavior should be affected by their perceptions of constituency preferences (Miller and Stokes 1963: 51–52). The manner in which representatives will act, however, is a continuing source of controversy. Do members serve as "trustees" of the popular will, in the sense of Edmund Burke, or are they more direct "delegates" of their constituents? The scholarly consensus is that legislators combine these roles, but in the case of salient issues, legislators are more likely to act as delegates for their constituents (Arnold 1990: 127–31; Clapp 1963; Davidson 1969: ch. 4; Wahlke et al. 1962: ch. 12). The overall empirical evidence for electoral considerations affecting representatives' voting has been mixed, at best (see, for example, Deckard 1976; Kuklinski 1977; Bailey and Brady 1998), but we would reasonably expect constituents' attitudes toward the president (as evidenced by electoral returns) to have at least some impact on the decisions made by elected representatives, particularly in the midst of accusations by Democrats that House Republicans were attempting to overturn the results of the presidential election.

It has also been posited that the electoral connection is weakened when representatives, for

one reason or another, leave office. Of particular importance and interest in the literature has been the decision to retire; Bianco, Spence and Wilkerson (1996: 168) found that members who retired from Congress after the 1816 session were more likely than their returning colleagues to have supported a controversial congressional pay raise. Although Bianco et al. are primarily concerned with the electoral connection, career path choices are also implicated in their research. In the case of the 105th Congress, every member had announced his or her intention to seek reelection before the Independent Counsel's referral was made to Congress; nevertheless, despite the later timing of retirement decisions in the current era, it is possible that retiring members, free of the perceived electoral consequences of their vote on impeachment, may have been more likely to vote according to their ideological dispositions. For example, retiring Democrats might be more willing to support the president, and retiring Republicans might be less willing to support him. While the ability of researchers to find such "shirking" empirically has been limited, at best (see Bender and Lott 1996 for an overview; for a more recent examination of the issue, see Rothenberg and Sanders 2000b), the high salience of these votes and their juxtaposition in a highly partisan environment provides a compelling opportunity to test whether members not facing reelection do, in fact, behave differently.

The final theoretical construct being tested is that of legislator ideology: did the underlying ideological beliefs of members influence their voting on impeachment, and if so, to what extent? A large body of research (see, e.g. Poole and Rosenthal 1997) suggests that legislators are primarily motivated in their voting behavior by their internal belief systems; however, if representatives do engage in shirking, as Rothenberg and Sanders (2000a,b) suggest, they may behave in a more ideological manner than usual when the constraint of having to seek reelection is removed.

2 Hypotheses and Variables

The theories that are being tested have a number of implications in this specific case.

- Hypothesis One: (Constituency Influence) Members of Congress will take constituency-

Table 1: Independent Variables

Variable	Definition
Clinton 1996 Vote	Two-party support for the Clinton-Gore ticket in the constituency in the 1996 general election, expressed as a proportion of the vote.
Legislator Ideology	First dimension W-NOMINATE scores for members of the House during the 105th Congress.
Lame Duck	Coded 1 for members who did not return to the House in the 106th Congress.

level support for the President into account in making their decisions about impeachment. Presumably members from districts that did not support Bill Clinton will be less reluctant to "overturn the results of the election" than members who hail from districts with higher support for Clinton. The level of support for the Clinton-Gore ticket, as a percentage of the two-party popular vote[2] in the constituency, is used as a barometer of support for the President in the member's district; the corresponding coefficient is expected to be negative.

- HYPOTHESIS Two: (Ideology) Members will vote consistently with their underlying preferences on impeachment. This is operationalized by using the first dimension W-NOMINATE (Poole 2006) scores for the 105th Congress.[3]

- HYPOTHESIS THREE: (Shirking) Members who are "lame ducks" are expected to be more ideologically-oriented than their colleagues, but less likely to respond to the level of constituency support for the President. Thus, a dummy variable representing "lame duck" status was interacted with indicators of both the constituency level of support for the President and member ideology.

Table 2: Roll-call votes on the Articles of Impeachment

Roll call	Outcome	Democrats	Republicans
543: Article 1 (Perjury)	Passed (228–206)	5–200	223–5
544: Article 2 (Obstruction of justice)	Failed (205–229)	5–200	200–28
545: Article 3 (Subornation of perjury)	Passed (221–212)	5–199	216–12
546: Article 4 (Contempt of Congress)	Failed (148–285)	1–203	147–81

3 Data and Models

A summary of the independent variables used in this article appears in Table 1, and a summary of voting on the articles of impeachment is shown in Table 2. The dependent variable is a simple additive scale of the number of articles of impeachment supported by the member; this tally has a Cronbach's alpha of 0.95, suggesting that it can be reasonably treated as a Likert scale.

There are generally two appropriate estimators for a model with an ordinal dependent variable: ordered logit (sometimes referred to by statisticians as *proportional-odds logistic regression*) and ordered probit (see McKelvey and Zavoina 1975; Liao 1994; Long 1997). Typically, social scientists treat these two models as interchangeable; the results presented here, however, cast doubt upon this common assumption.[4] All of the models presented in this paper were estimated in *R* (Ihaka and Gentleman 1996; R Development Core Team 2005) with the `polr` procedure in the `MASS` package (Venables and Ripley 2002).

4 Analysis

An replication of Rothenberg and Sanders's analysis using the same specification and estimator (ordered probit) as they used for all 433 members who voted on all four of the impeachment questions produces substantially identical results (and thus is not duplicated here). As they note, the

[2]The Democratic share of the vote for Democratic and Republican delegates to the Electoral College.

[3]There is a potential endogeneity issue with the use of scores from the 105th Congress, as the four votes that make up the dependent variable were used in the construction of the W-NOMINATE scores. Ideally, either W-NOMINATE scores from the 104th Congress, or new W-NOMINATE estimates for the 105th Congress excluding the impeachment votes, should be used. The former approach, however, excludes 80 members from the analysis. A footnote in the analysis section details the effect of using the 104th Congress W-NOMINATE scores.

[4]For further details on the ordered logit and probit models, see the appendix.

Table 3: Ordered logit model of support for impeachment (all members)

Independent Variable	Coefficient (Std. Err)
Clinton 1996 Vote	−6.022**
	(2.282)
Legislator Ideology	7.585***
	(0.670)
Clinton 1996 Vote × Lame Duck	1.703
	(1.461)
Legislator Ideology × Lame Duck	−0.754
	(1.348)
μ_1	−2.253†
	(1.288)
μ_2	−1.875
	(1.298)
μ_3	−0.538
	(1.301)
μ_4	1.492
	(1.280)
Log likelihood (L)	−208.151
LR test ($\chi^2(4)$)	609.803***
Percent correctly classified	81.3%
Proportional reduction in error	64.6%

- Coefficients are ordered logit maximum-likelihood estimates. $N = 433$.
- *** indicates $\Pr(t) < .001$, ** $p < .01$, * $p < .05$, † $p < .10$ (two-tailed test).

interaction between the Clinton Vote variable and the lame duck indicator approaches traditionally-accepted levels of statistical significance ($p \approx 0.067$ in a two-tailed t test), suggesting that retiring legislators did engage in shirking. The statistical significance of this interaction is the key finding underlying their argument that departing representatives behaved differently than those who stayed in Congress.

In Table 3, the only difference from the original authors' specification is that the ordered logit estimator was substituted for ordered probit. In general, both estimators are expected to produce similar results for well-conditioned problems. That is clearly not the case in this instance; while the coefficients do generally scale as expected,[5] the interaction is no longer statistically

[5]Long (1997) and others suggest that logit coefficients are generally 1.6–1.8 times larger than probit coefficients

Table 4: Ordered probit model of support for impeachment (Republicans only)

Independent Variable	Coefficient (Std. Err)
Clinton 1996 Vote	−3.349*
	(1.395)
Legislator Ideology	3.228***
	(0.543)
Clinton 1996 Vote × Lame Duck	−0.514
	(1.882)
Legislator Ideology × Lame Duck	0.862
	(1.673)
μ_1	−2.210*
	(0.915)
μ_2	−1.805*
	(0.906)
μ_3	−0.876
	(0.901)
μ_4	0.173
	(0.898)
Log likelihood (L)	−185.465
LR test ($\chi^2(4)$)	84.549***
Percent correctly classified	75.4%
Proportional reduction in error	64.1%

- Coefficients are ordered probit maximum-likelihood estimates. $N = 228$.
- *** indicates $\Pr(t) < .001$, ** $p < .01$, * $p < .05$, † $p < .10$ (two-tailed test).

significant at conventional levels ($p \approx 0.244$ in a two-tailed test). However, as there is no reason to prefer one estimator over the other, we cannot conclude solely on the basis of these results that the original conclusions were erroneous.

The key conclusion of Rothenberg and Sanders is that Republican legislators who left Congress engaged in shirking. If that is the case, excluding Democratic legislators from the model should *strengthen* the relationship they find. Table 4 shows the results of an ordered probit model in which only Republican members are included. Not only does the interaction in this model fail to attain statistical significance ($p \approx 0.785$)—it is now signed in the opposite direction. If, as Rothenberg and Sanders indicate, Republicans were engaged in shirking, removing the Democrats

for the same model.

Table 5: Ordered probit model of support for impeachment (excluding Paul McHale)

Independent Variable	Coefficient (Std. Err)
Clinton 1996 Vote	−2.671*
	(1.232)
Legislator Ideology	4.360***
	(0.353)
Clinton 1996 Vote × Lame Duck	−0.436
	(1.394)
Legislator Ideology × Lame Duck	0.883
	(1.296)
μ_1	−0.852
	(0.699)
μ_2	−0.625
	(0.704)
μ_3	0.137
	(0.707)
μ_4	1.231†
	(0.700)
Log likelihood (L)	−202.915
LR test ($\chi^2(4)$)	616.241***
Percent correctly classified	73.8%
Proportional reduction in error	50.4%

- Coefficients are ordered probit maximum-likelihood estimates. $N = 432$.
- *** indicates $\Pr(t) < .001$, ** $p < .01$, * $p < .05$, † $p < .10$ (two-tailed test).

from the model should have had, at worst, no effect on the significance or sign of the coefficient of the interaction; instead, the coefficient is no longer statistically significant, and the sign of the coefficient indicates that, if anything, lame-duck legislators voted *more* consistently with constituency preferences than their colleagues who returned in the subsequent Congress.

Why did Rothenberg and Sanders come to the conclusion that retiring Republicans engaged in shirking? One possible explanation is that at least one member of Congress *did* engage in shirking. One of the lame ducks was Democrat Paul McHale of the 15th District of Pennsylvania. McHale was something of an odd duck: one of only five Democrats to support any of the articles of impeachment, the only lame-duck Democrat to do so, the only northern Democrat to do so, and the only Democrat who supported impeachment from a district in which Bill Clinton received a

plurality in the 1996 election.[6] Since McHale isn't a Republican, his presence or absence from the model should have no effect on whether or not we would conclude that Republicans engaged in shirking. Table 5 shows the results with 432 members included—in other words, the only member of the House of Representatives who voted on all four of the articles of impeachment who is excluded is McHale. Again, the interaction is statistically insignificant ($p \approx 0.755$, two-tailed) and signed in the wrong direction. Remarkably, this single outlier appears to have produced the evidence of shirking that Rothenberg and Sanders attribute to Republicans; excluding McHale from the analysis causes this evidence to disappear.[7]

5 Beyond the 1998 Mid-Term Election: Delayed Shirking?

Due to the unique timing of the votes of the articles of impeachment, members who were reelected in 1998 could still have avoided the electoral consequences of their impeachment votes in subsequent elections by retiring prior to the 2000 election—in other words, we may have seen "delayed shirking" in this case.

There is some evidence that, at first glance, suggests that some members who remained in the House for the 106th Congress may have engaged in shirking; notably, of the 32 members (of both parties) who were in the House at the time of the impeachment vote and did not seek reelection to the House in 2000, the first House election after the impeachment vote during the 1998 lame duck session, 25 had supported one or more articles of impeachment against Clinton, substantially more than we might expect given the relatively close votes in the House on impeachment.[8] Most

[6] Clinton received 52.9% of the two-party vote in McHale's district in 1996. In the other four Democrats' districts, Clinton received an average of 41.3% of the two-party vote in 1996.

[7] In addition to these analyses, a separate analysis was conducted using the W-NOMINATE scores for the 104th Congress as indicators of legislator ideology, to avoid the potential endogeneity problem discussed above. The interaction between Clinton 1996 vote and lame duck status is insignificant ($p \approx .204$) in this model as well, while the main effects of both legislator ideology and Clinton's vote share remain statistically significant, suggesting that the slight endogeneity resulting from the use of the 105th Congress W-NOMINATE scores as an independent variable was not problematic.

In addition, separate probit analyses of the individual votes on impeachment show no evidence of shirking among Republicans; the votes on Articles 1–3 appear to be solely motivated by legislator ideology, while votes on Article 4 were apparently motivated by both legislator ideology and constituency support for Clinton in the 1996 election.

[8] $\chi^2 = 9.231$, $p < .003$.

of the retirees, however, were replaced by Republicans.

Looking solely at districts where Clinton had won a plurality of the vote in 1996, supporters of impeachment were also more likely to be retirees.[9] This differential in retirement rates again suggests that impeachment supporters may have been attempting to avoid voter retribution for their roll call votes; however, in districts where Clinton won a plurality in 1996, each Democratic pickup was offset by a Democratic loss elsewhere.

While this evidence does at least suggest the possibility of shirking, a multivariate test of this hypothesis is warranted. Thus, a model similar to that of Rothenberg and Sanders (2000a) was used, with those members who chose to retire before the 2000 election treated as they treated "lame ducks" in their 1998 model, on the presumption that members of Congress may have actually decided to retire before casting their impeachment votes. Ordered probit models were estimated for all members and for Republicans only, and both models found no statistically-significant evidence for shirking among the House members who served into the 106th Congress once controls were included for district presidential support and legislator ideology; see Tables 6–7 for details.[10]

6 Conclusions

This article reviewed the finding of Rothenberg and Sanders (2000a) that lame-duck Republican members of Congress engaged in shirking in the impeachment process of former President Bill Clinton. The analysis in this article suggests that they were incorrect to attribute the substantive meaning of the interaction between lame duck status and the electoral support for Clinton in the district to retiring Republican members; instead, the evidence indicates that the apparent interaction was due to the unusual behavior of Paul McHale, a lame-duck Democrat who supported impeaching the president. One representative's aberrant behavior does not suggest that shirking is widespread, particularly among members of the opposite party.

[9] $\chi^2 = 4.957$, $p < 0.026$; 8 Republicans (of a possible 76) from Clinton-plurality districts retired, versus 6 Democrats (out of 173).

[10] For completeness, ordered logit models were also estimated.

Table 6: Delayed shirking model of support for impeachment (all members)

Independent Variable	Coefficient (Std. Err)
Clinton 1996 Vote	−2.693*
	(1.290)
Legislator Ideology	4.441***
	(0.378)
Clinton 1996 Vote × 2000 Retiree	1.158
	(0.873)
Legislator Ideology × 2000 Retiree	−0.119
	(0.748)
μ_1	−0.781
	(0.730)
μ_2	−0.589
	(0.735)
μ_3	0.204
	(0.738)
μ_4	1.348†
	(0.731)
Log likelihood (L)	−181.710
LR test ($\chi^2(43)$)	662.686***
Percent correctly classified	82.5%
Proportional reduction in error	66.7%

- Coefficients are ordered probit maximum-likelihood estimates. $N = 394$.
- *** indicates $\Pr(t) < .001$, ** $p < .01$, * $p < .05$, † $p < .10$ (two-tailed test).

Table 7: Delayed shirking model of support for impeachment (Republicans only)

Independent Variable	Coefficient (Std. Err)
Clinton 1996 Vote	−3.233*
	(1.471)
Legislator Ideology	3.490***
	(0.582)
Clinton 1996 Vote × 2000 Retiree	1.444
	(1.266)
Legislator Ideology × 2000 Retiree	−0.373
	(1.014)
μ_1	−1.964*
	(0.962)
μ_2	−1.612†
	(0.953)
μ_3	−0.621
	(0.948)
μ_4	0.474
	(0.947)
Log likelihood (L)	−165.309
LR test ($\chi^2(25)$)	124.860***
Percent correctly classified	72.9%
Proportional reduction in error	60.0%

- Coefficients are ordered probit maximum-likelihood estimates. $N = 207$.
- *** indicates Pr(t) < .001, ** $p < .01$, * $p < .05$, † $p < .10$ (two-tailed test).

Instead, the only robust statistical evidence supports the conclusion that representatives' votes on impeachment were motivated by a combination of constituency affinity for the president and member ideology. While there is some evidence of possible shirking among Republican retirees prior to the 2000 election, there are other reasonable explanations for the surge in Republican retirements in that year that have little to do with the impeachment vote, including fulfilling term limits pledges and widespread opportunities for higher office, and the GOP's losses attributable to retirement of pro-impeachment Republicans were balanced out by similar Democratic losses in districts formerly represented by anti-impeachment Democrats. Furthermore, multivariate tests found no robust evidence to support this hypothesis.

It is nonetheless possible that some members do engage in shirking when the electoral connection is removed. The increase in the number of states with term limits provides the ability to test this proposition, at least among state legislators (see, e.g. Carey 1996, Carey, Niemi and Powell 2000, and Southwell 2002). It is also possible that shirking does take place in other circumstances in the contemporary Congress. However, it is fairly clear that the evidence of widespread shirking in this particular instance is weak to nonexistent—there is no systematic relationship between lame duck status and the level of attention the member paid to constituency preferences.

More generally, this article suggests that quantitatively-oriented social scientists should take care to not treat statistical packages as "black boxes" into which data is dropped. Scholars should ensure there are no outliers that are leading to artefactual results, and examine alternative specifications, including estimators—particularly when there is no clear, single choice of estimator, as is the case with both the binary response and ordinal response models. A small amount of extra work in the data analysis phase will lead to better, and more robust, substantive findings by our discipline.

7 Appendix: Ordered Probit and Ordered Logit

In the ordered probit model, the probability of the dependent variable y_i with k categories having the value j is given in matrix form by

$$\Pr(y_i = j) = \Phi(\mu_j - \beta' x_i) - \Phi(\mu_{j-1} - \beta' x_i),$$

where Φ is the standard normal cumulative density function, μ_j is one of $k-1$ constant "cut points" estimated along with the coefficient matrix β,[11] and x_i is the vector of independent variables for observation i.[12] This equation can also used to predict the probability of y being any given value j for a given x once the coefficient vector β has been estimated. The ordered logit model is identical, except that the standard normal cumulative density function (Φ) is replaced by the logit cumulative density function, $\Lambda(x) = e^x/(1 + e^x)$.

[11] By definition, $\mu_0 = -\infty$ and $\mu_k = \infty$.

[12] There is an alternative parameterization of the model, primarily used by LIMDEP, in which μ_0 is set to zero and a constant term is estimated instead of μ_1. This parameterization was apparently used in the original analysis by Rothenberg and Sanders. For a more extended discussion, see Long (1997: 104).

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