When Do Politicians Lie?

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Abstract

When do politicians lie? A politician who admits to wrongdoing will likely suffer some loss of popularity, but probably not as great as if he denied wrong doing and was subsequently discovered to have lied. This simple observation has a number of implications. For example, a politician in a marginal seat may have little choice but to risk lying as admitting will lose him too much popularity to survive. On the other hand, a politician in a relatively safe seat might survive the loss from admitting, but not from lying and being caught. Therefore we might predict the likelihood that a politician admits to a scandal to be positively related (over some range at least) to the security of his seat. This paper tests this prediction, and some others, with data from House bank scandal of 1991-92.

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1 Introduction

There is an old joke: When do politicians lie? When they open their mouth. Succinct and amusing, but a little too simple. Even an unethical politician will not lie in all circumstances. This paper will consider how the tendency of a politician to lie may be influenced by observable variables.

Consider a politician who has engaged in some wrongdoing. Should he reveal this? If he admits his guilt, voters will know he is guilty, but may think him honest. What if he denies wrongdoing? If he is caught, he will be seen as both guilty and dishonest; if he is not caught, he will be seen as both innocent and honest.[1] As long as honesty is not too important relative to innocence (which is likely if the scandal is important), denying is better than admitting if he is not caught, but worse if he is - denying is more risky than admitting.

How might this decision be affected by a politician's political security? Suppose a guilty politician's reelection chances are marginal prior to the scandal. If he admits to wrongdoing, he will lose any hope of reelection. He would have to lie, and hope he is not caught, to have any chance of reelection. On the other hand, if a politician is relatively secure, he may be able to survive his wrongdoing provided he is honest about it. However, he may not survive if voters learn about both his wrongdoing and his attempts to cover it up. Admitting will maximize his reelection prospects.

Aside from this, people are more likely to lie if innocence is more important that honesty. For example, a politician whose polling tells him that his electorate can forgive wrongdoing, but not being lied to, is more likely to admit to his mistakes. Finally, there is the obvious point that the higher the probability that a lie will caught, the higher the less attractive lying is.

This paper will test these intuitive predictions with data from a scandal involving the bank of the US House of Representatives. The scandal began on September 19th, 1991 when Roll Call published a report by the General Audit Office noting that 8,331 overdrafts had been written at the House bank between July 1989 and June 1990. The bank's policy was to cover overdrawn checks, effectively giving interest free loans.[2] On October 3, 1991, the House voted for an Ethics Committee investigation into the matter. The issue was taken up by Republicans in

[1] Although he will not normally be seen as being as honest as someone who admits.

[2] The poorly organized House bank system itself may have been partly to blame for the number of overdrawn checks. The bank did not send House members regular statements or inform them when they were overdrawn. Furthermore, deposits were often delayed for weeks. Therefore, some members may not have realized they were overdrawing their accounts. However, some members systematically exploited the system for personal gain - for example by regularly taking an overdraft as an advance against future salary.

the House, under the leadership of Newt Gingrich, and by the (Republican) White House under the impression that most of the worst offenders were Democrats. However, it was not until March 13th, 1992 that the House voted to reveal the list of members and the number (though not the dollar amounts) of their overdrawn checks for the period July 1988 to October 1991. The list of the 450 Representatives involved was published on April 16th. 22 members (18 Democrats, 4 Republicans) were noted as the worst offenders by the Ethics Committee having written an average of 520 overdrawn checks. On April 21st, Judge Malcolm Richard Wilkey, who had been appointed by the Attorney General William Pelham Barr to investigate the scandal, issued a subpoena for all House banking transactions. After some debate, the House voted to hand over the documents. Over the summer the Justice Department investigated members for criminal wrongdoing. Most were cleared, but four Congressmen, a Delegate and the House Sergeant at Arms were convicted - though not all of these convictions were for improper use of the overdraft facility.

The House bank scandal is perfectly suited to explore the incentives of politicians to admit or deny scandal because it provides a large data set of comparable observations. Furthermore, the scandal had a significant effect on the reelection prospects of the politicians involved. The 1992 House elections provided the largest turnover of incumbents in 40 years with 110 new members joining the 103rd congress. Although factors such as redistricting undoubtedly contributed to this turnover, the House bank scandal was also important. Econometric research (Groseclose and Krehbiel, 1994, Jacobson and Dimock, 1994, Hall and Van Houweling, 1995, Banducci and Karp, 1994, Alford et al., 1994, Stewart, 1994) has shown that the House bank scandal had a large effect on retirements and primary defeats. The general election effects were more muted, though still measurable.

There are few other political scandals amenable to econometric analysis. To my knowledge, the only one to attract significant research is the 2009 expenses scandal involving Members of Parliament in the United Kingdom. Vivyan, Wagner and Tarlov (2011) found evidence that constituents of MPs who were involved in the scandal were aware of this involvement and that it did reduce the likelihood that they would vote that MP in 2010. Allen and Birch (2011), using survey data from the same expenses scandal, found evidence that British voters do take notice of scandals and that, when forced to choose, they value ethics over competency. This suggests that the way in which a politician handles a scandal will have an effect on his political prospects.

There has been little research into the incentives of politicians to conceal scandals. Davis and Ferrantino (1996) present a theoretical model to analyze politicians' incentives to make positive lies (about themselves) or negative lies (about their opponents) during political campaigns. The negative tone of much political debate might arise because negative lies are harder to check than positive lies.

However, the situation in that paper is different from that considered here because "not lying" does not require that the politician reveal some damaging information. Furthermore, that paper is purely theoretic and presents no empirical evidence.

Social psychologists have explored how the effectiveness of a denial can depend on whether the denial is cognitively consonant or dissonant to the prior beliefs of those listening to the denial (see, for example, Milburn and Conrad, 1998). For example, the My Lai massacre of four hundred Vietnamese civilians by American troops on March 16th, 1968 was successfully denied for over a year. In this case, the denial was consonant with the prior beliefs of American citizens about the conduct of American soldiers while the truth was highly dissonant. In the House bank scandal, Dimock and Jacobson (1995) find a cognitive dissonance effect in the general election - voters of the incumbent's party or who otherwise appreciated him (or her) tended to dismiss the scandal as insignificant. This effect was less pronounced in the primary elections because it was possible to abandon the scandalized politician without abandoning party or ideology. Therefore, most of the political casualties were due to primary losses (or retirements) rather than general election losses.

There are many examples of carefully phrased, but potentially misleading, denials by politicians.[3] Ambiguous denials potentially pose a problem for objective analysis. This paper avoids this problem by using the unambiguous responses of house members to a clear question with a yes/no answer.

There is a significant literature on political apologies (see Blaney and Benoit, 2001, for an introduction). For example, McGraw (1990, 1991) considers the effectiveness of excuses (denying responsibility) and justifications (denying negative consequences) in changing negative opinions about a politician. In experiments, she finds that justifications are more effective than excuses, but both excuses and justifications may worsen voters' opinions. She explicitly focuses on negative opinions about policy positions (rather than scandals) and on the response of politicians to existing negative opinions. The latter aspect of her research is typical of the literature in this area which focuses on political strategy after the release of negative information. This paper considers decisions made by politicians before they know if negative information will be released.

The primary contribution of this paper to the literature is to empirically analyze the drivers of politicians' decisions on whether to admit to or deny a scandal. The most interesting result is that, over some range, more secure politicians are more likely to admit to wrongdoing.

[3] One of the most famous recent examples is President Clinton's statement that "I did not have sexual relations with that woman, Miss Lewinsky". The New York Times obituary of Ronald L Ziegler, President Nixon's press secretary, is almost entirely devoted to examples of his non-denial denials (Purdum, 2003).

Section 2 introduces the House bank scandal and outlines the empirical strategy. Section 3 presents the econometric analysis. Section 4 suggests some broader implications of the paper.

2 Empirical strategy

In this section, we will outline some predictions and propose some tests of those predictions. In the next section, we will test those predictions using data from the House bank scandal. Unless otherwise stated, whenever I refer to checks, it can be assumed that I am talking about overdrawn checks that broke House rules, not legally written checks. When referring to politicians, I am referring to those who have written such checks.[4]

- **A politician's likelihood of admitting to a crime will depend on the security of his seat**

If you deny writing checks and are caught, you are worse off than admitting; if you deny and are not caught, you are better off than telling the truth. As a result, we can order the outcomes from worst to best: (Deny, Caught), (Admit), (Deny, Not Caught). Now consider politicians whose seats vary in safety or security. There are four possibilities:

1. Safe: Will win election even if denies and is caught
2. Secure: Will win election unless denies and is caught
3. Insecure: Will lose election unless denies and is not caught
4. Doomed: Will lose election even if denies and is not caught

What are the incentives for these politicians? For the safe and doomed politicians, our model provides no strong prediction as their fate in the election will be unaffected by how they handle this scandal. However, for the secure and insecure politicians, we have clear predictions. The secure politician should always admit as this guarantees he will win the election. The insecure politician must deny and hope he is not caught as this is his only chance to win the election. These results are presented in table 1.

We would, therefore, predict that the probability that a politician admits would rise with the security of his seat over some range (between the "insecure" and the "secure"). But that this trend might actually reverse for extreme values

[4]From the point of view of the formal model in appendix 1, these are opportunistic politicians.

TABLE 1
EFFECT OF SECURITY ON ADMISSION & DENIAL

Type	Deny, Caught	Admit	Deny, Not Caught	Action
Safe	Win	Win	Win	?
Secure	Lose	Win	Win	Admit
Insecure	Lose	Lose	Win	Deny
Doomed	Lose	Lose	Lose	?

of security: "doomed" politicians might admit more than "insecure" politicians as there incentives to deny are not as strong; "safe" politicians might admit less than "secure" politicians as their incentives to admit are not as strong. As relatively few incumbent politicians are doomed one year into their term, we might not pick up the first effect empirically. However, we need to consider the possibility of the second effect. This means that the relationship between security and admission is likely to be positive for relatively low ranges of security (in the observed sample) but decline for higher ranges. We will try to capture this concavity by including the square of security in our regressions.

- **Increasing number of checks increases probability of admission**

If a politician is more likely to be caught (or at least believes this to be so), he is more likely to admit. The subjective probability of politicians is not directly observable. However, there may be some observable factors that are likely to be correlated with it. The politicians will have realized that the scandal would likely require at least some politicians' check-writing to be revealed in order to appease public opinion. It might not have been clear who would be the "scapegoats", but it seems plausible to assume that politicians who had written more checks would be more likely to be revealed than those who had written few checks. Indeed, although the full list of guilty politicians was released on April 17th, 1992, the 21 "worst offenders" were revealed on March 14th - more than a month earlier. This list is almost identical to a list of the politicians who had written the most checks. Therefore, it is likely that the more checks written by a politician the higher his subjective probability of getting caught. If this is so, and increasing probability of getting caught increases the likelihood of admission, we should see a positive relationship between the number of checks written and the probability of admission.

It could be argued that the more checks a politician had written, the bigger the cost to him of having that number revealed. This effect would be relevant if the

politician was asked how many checks he had written. However, in the Washington Post article used in this paper, he is asked only whether he wrote checks. Therefore, there does not seem to be any reason for someone who has written many checks to be less willing to admit to writing them than someone who has written a few.

Therefore, the model would predict that a politician who has written more checks should be more willing to admit to writing checks.

- **A politician planning to retire might be less likely to admit to check writing**

This prediction is more speculative than the others. While it is reasonable to assume non-retiring politician cares about his probability of reelection and hence on his reputations in different areas, it is harder to see what matters to a politician who is retiring. Nevertheless, there are two reasons why retirement might lead to a politician being less likely to admit to writing checks.

The value of being thought honest is at least partly the ability to send credible signals. Someone who lies loses this ability. The boy who cried wolf developed a reputation for dishonesty (lost his credibility) by lying repeatedly and so his subsequent signal that a wolf was coming was not believed. In this case, there was a significant cost to losing credibility. In the case of a politician, credibility is most important in elections when the politician attempts to have his campaign message believed by voters. A politician who is planning to retire will not be standing for election and therefore will not require credibility (with voters) to the same degree. This might suggest that politicians who are planning to retire should value the reputation for honesty less. This would imply that the politician should admit less.

Would not the retiring politician also care about his reputation for innocence less? This is likely. A politician who is retiring probably worries about any reputation with voters less than someone who is going to stand for reelection. However, I believe the effects will be greater for the reputation for honesty than for the reputation for innocence. If a politician is believed to have written checks, he will lose some popularity. If he is believed to have lied about it, he will lose additional popularity. These effects are, in some sense, symmetric. In both cases, the voters reduce their opinion of the politician when they learn he has done something wrong. Both these effects are likely to be of less concern to the retiring politician and it is not clear that one or other of them will be relatively less important compared to a non-retiring politician. However, the non-retiring politician has an additional cost to losing his reputation for honesty - his campaign promises will be less trusted.

The retiring politician does not have this additional cost. As a result, it seems reasonable to conclude that honesty is relatively less important for a retiring politician. As a result, the prediction discussed in the previous paragraph would still hold.[5]

There is the possibility of reverse causation here. It is possible that a politician who conceals his guilt and is caught doing so may retire to avoid losing the election. This effect is difficult to untangle theoretically, but I will address it during the empirical investigation.

3 Empirical analysis

Data sources

The data were collected from a variety of sources. The appendix contains the definitions and sources for each variable. The information on the number of bad checks written was taken from a table in The New York Times, April 17th 1992 (New York Times, 1992). The decision of members to admit or deny that they wrote bad checks was taken from a survey carried about The Washington Post on October 7th, 1991 (Washington Post, 1991). This survey came soon after the General Audit Office had published the first report on the issue and about five months before the decision was taken by the House to publish the list. Information on election results, exits from public life, redistricting, etc. were taken from the Congressional Quarterly website and campaign finance data was taken from data collected by the Federal Election Commission and distributed by the Inter-University Consortium for Political and Social Research (ICPSR), study number 6336 (Federal Election Commission, 1994).[6] From the 1992 Congressional Redistricting Summary prepared by the National Republican Congressional Committee, I obtained the share of the vote George Bush received in the 1988 presidential election in both the old and the new districts. The difference gives a measure of the degree of redistricting.

[5] This was explored in my PhD thesis Armstrong-Taylor, 2005.

[6] Some candidates were excluded from the analysis because they left the House before the scandal broke or entered the House after the period in which the overdrawn checks were tracked. In the former case, the candidate never had an opportunity to admit to writing checks and, in the latter, it was common knowledge from the start that he never had the opportunity to write any checks. Neither case fits the model. I also exclude the members of the House representing American Samoa, District of Colombia, Guam, Puerto Rico and the US Virgin Islands.

Summary of strategies

Before running any regressions, I will summarize the relationship between the number of checks written by an incumbent and his response to the Washington Post survey. The survey recorded three classes of responses from the incumbents: the incumbent admitted to writing overdrawn checks, the incumbent denied writing overdrawn checks or the incumbent did not respond. Table 2 shows how their response depended on whether they had actually written checks.[7]

TABLE 2
THE RELATIONSHIP BETWEEN
CHECK-WRITING AND STRATEGY

	No. checks > 0	No. checks $= 0$	% checks > 0
Admit	55	0	100
NR	74	9	89
Deny	139	157	47
Total	268	166	60

None of the politicians who did not write checks claimed that they did. The proportion of non-responders who did write checks is clearly greater than the proportion of the total population who wrote checks suggesting that the non-responses were not random. As our intuition does not consider non-responders, I consider three approaches to this issue. First, we can combine non-responses with denials (so the proxy for admission would only include politicians who explicitly admitted), or with admissions (so that the proxy for admissions actually represents "failure to deny"). Second, we can estimate ordered or unordered probit models over the three outcomes (admit, no response, deny). Third, we could estimate a selection model of nested decisions - first, the politician must decide whether to respond and, if he responds, he must decide whether to admit or deny.

Core model

The model predicts that the probability that a politician admits is a function of the number of overdrawn checks he wrote (*Checks*), the security of his seat (*Security*)

[7]The numbers reported by the Washington Post were: Admit=56, NR=86 and Deny=297. Some of the respondents were excluded from my sample for reasons noted in the previous footnote.

and the his intention to retire (*Retire*). The probability to admit should be increasing in *Checks*, increasing then decreasing in *Security*, and decreasing in *Retire*.

$$\begin{aligned} Pr(Admit) &= f(Checks, Security, Retire) \\ \frac{df}{dChecks} &> 0 \\ \frac{df}{dSecurity} &> 0 \, for \, Security < \bar{S} \\ \frac{df}{dSecurity} &< 0 \, for \, Security > \bar{S} \\ \frac{df}{dRetire} &< 0 \end{aligned}$$

This suggest a model of the following form:

$$\begin{aligned} &Pr(Admit) \\ &= \Phi\left(\alpha + \beta_1 Checks + \beta_2 Security + \beta_3 Security^2 + \beta_4 Retire\right) \end{aligned}$$

There are alternative ways to estimate this relationship. One standard approach is the probit model. We will also consider an unordered probit model which can take account of the possibility that the politician did not respond. Finally we will consider a Heckman selection model in which the politician first decides whether or not to respond, and then decides whether to admit or deny. Each of these models allows us to explore a different aspect of the politician's decision and, together, should give us a well-rounded view of the way in which these decisions are made.

We will only consider the actions of those politicians who wrote some overdrawn checks. If a politician did not write any checks, he would have nothing to admit to and there is no reason for him to falsely claim that he did write some checks. Furthermore, in the sample, none of the politicians who did not write checks made this claim.

Discussion of key variables

Log Checks We use the natural logarithm of checks written rather than the raw number to capture the intuition that the significance of writing 11 checks rather than 1 is greater than that of writing 510 checks instead of 500. It is likely that the relationship between the number of checks written and the behavior of the politicians will be concave and the natural logarithm is one way to capture this effect.

Retire One of our hypotheses is that a politician who is more likely to retire is less likely to admit. We would, therefore, like to have a variable which captures the intention of a politician to retire. If we used an indicator function based on the actual retirement decision, this could be affected by some of the other variables in the regression. For example, a politician who had written many checks would be more likely to choose (or be forced) to retire than one more tangentially involved.

To avoid this problem, we will use a instrumental variable approach using variables unrelated to the check-writing scandal and whose values were fixed before the scandal broke. *Age Over 65*[8] captures the idea that a politician is increasingly likely to retire as his age increases beyond 65 years. A provision of the 1979 Federal Election Campaign Act allowed House members who were sworn in prior to January 8th, 1980 to keep unused campaign funds for personal use. However, this provision expired in 1992 and so eligible politicians would have to retire prior to the 1992 election to take advantage of it. Following Grehbiel and Groseclose (1994) and Renfro (1992), I capture this effect with *Grandfather Cash*[9]

Security We have hypothesized that there will be a relationship between the security of a politician's seat and their willingness to admit to scandal. How should we measure a politician's security? We want a measure of the subjective confidence that the politician has in their chances of reelection at the time that they are deciding whether or not to admit to writing checks. The measure should only depend on variables known to the politicians at the time they decide whether or not to admit as it is unreasonable to assume that the politician could use information he does not yet know of. The measure should not depend on any variables affected by the scandal as we want the security variable to be independent of the scandal.[10]

To develop a measure that addresses these points we can run a regression of actual performance in the 1992 elections against variables known at the time of the scandal and use the predicted values as our measure of security. This will provide a reasonable estimate of the politician's expectations of performance in the election independent of the scandal.

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[8] $\textit{Age Over 65} = max(\textit{Age} - 65, 0)$

[9] $\textit{Grandfather Cash} = \log(1 + \textit{House 1980} * \textit{Cash})$ where *House 1980* equals one if the incumbent was sworn into the House before 1980 and *Cash* is the amount of cash in their campaign fund on December 31st 1990 (after the previous election). This variable equals zero if the incumbent entered the House after 1980.

[10] My approach also implicitly assumes that the politician correctly predicts the effects these variables will have on his subsequent election performance. There is a large debate on rational expectations in economics (see for example Janssen, 1993, and Lodhia, 2005) which I will not discuss here. However, it is perhaps the simplest way to estimate inherently unmeasurable and subjective expectations.

One immediate problem is that not all the politicians ran for reelection. Clearly the decision of whether or not to stand for reelection could depend, in part at least, on the security of the politician. We can model this using a Heckman selection model (Heckman, 1979). Table 3 shows the results of the Heckman selection model, together with an OLS model of the same regression. The second equation is the selection part of the model that determines whether or not the politician stood for reelection. The first equation relates performance in the 1992 election to information known at the time of the scandal.[11]

The dependent variable is the minimum of the share of the vote in the 1992 primary election and 1992 general election (if available). We use the minimum because in some districts a greater threat to incumbent came in the primary and, for others, it came in the general election. The minimum of these seems like a reasonable estimate of how close the politician came to losing their seat (or actually losing their seat). *1990 General Vote* is the share of the vote in the 1990 general election truncated at 80%.[12] The share of the vote in the 1990 primaries was also tested but proved insignificant and had no effect on the estimates. Redistricting (such as that occuring between the 1990 and 1992 elections) might affect the security of an incumbent. Following Groseclose and Krehbiel (1994) we use three redistricting variables to capture this.[13] These variables are likely to affect both the decision to stand for election and performance in the election. *Age Over 65* and *Grandfather Cash* (discussed in the previous subsection) are likely to affect the decision to stand in the election, but not the performance in the election.

Interestingly, the athrho statistic shows that there is insignificant correlation between the errors of the two equations and that OLS may not be biased. The OLS coefficients are similar to the Heckman coefficients, so it seems as though the effect of these variables on the performance of the politicians in the election is not affected

[11] Throughout this paper, the standard deviations are shown in parenthesis under the corresponding coefficient. Significance levels: *** - 1%, ** - 5%, * - 10%.

[12] This attempts to avoid biases arising from politicians who were unopposed in the general election and so earned extremely high vote shares. It affects only 20 of 432 of the politicians gained greater than 80% of the vote in an election contested by both major parties. The results are not sensitive to this truncation

[13] *Redistricting* is a dummy variable that takes the value of 1 when the politician's district's boundaries were affected by redistricting between the 1990 and 1992 elections. |*Redist Partisan Chg*| is the absolute change in the percentage of the district voting for George Bush between the 1988 and 1992 elections. *Redist Partisan Chg* based in the same data, but is signed such that an increase in Bush's share of the vote is positive for Republicans and negative for Democrats. The data comes from a Republican National Congressional Committee Manuscript (1992). The RNCC omit data for states whose total number of seats did not change. For these seats, (again following Groseclose and Krehbiel, 1992) we use the average decline in George Bush's support from those districts reported in the RNCC manuscript.

TABLE 3:
HECKMAN SELECTION MODEL OF
ELECTION PERFORMANCE

Variable	Heckman	OLS
Equation 1: Minimum{% 1992 primary vote, % 1992 general vote}		
1990 General Vote	0.361***	0.372***
	(0.069)	(0.069)
Redistricting	-0.120***	-0.118***
	(0.024)	(0.024)
|Redist Partisan Chg|	0.078	0.042
	(0.196)	(0.192)
Redist Partisan Chg	0.269**	0.280**
	(0.136)	(0.136)
Intercept	0.395***	0.382***
	(0.048)	(0.046)
Equation 2: Selection		
1990 General Vote	1.591*	
	(0.844)	
Redistricting	0.152	
	(0.270)	
|Redist Partisan Chg|	-4.066**	
	(1.966)	
Redist Partisan Chg	0.623	
	(1.380)	
Age Over 65	-0.069***	
	(0.024)	
Grandfather Cash	-0.037***	
	(0.014)	
Intercept	0.398	
	(0.552)	
athrho	-0.242	
	(0.241)	
lnsigma	-2.048***	
	(0.042)	
# Obs (uncensored)	434 (369)	369

by the decision to stand for reelection.

In future regressions, we will use the fitted values from this regression as a proxy for the security of the politician. We could use either the Heckman results or the OLS results. The regressions were run with both versions and the results were almost identical. In order to simplify the presentation (and because the Heckman adjustment appears unnecessary), only the OLS results will be presented. *Security* will be the fitted values from the OLS regression. $Security^2$ will be this value squared - in order to capture the convexity effects of our theory.

Analysis

Recursive bivariate probit Table 4 presents the results of recursive bivariate probit model of the decisions to retire and admit / not deny (using robust standard errors). This recursive approach allows us to take account of any correlation between the errors in the two equations. The *Admit* binary variable is 1 when, and only when, the politician admits to writing checks. The *Not Deny* binary variable is 0 when, and only when, the politician denies.

The retirement regression is similar in both cases, but the other regression results differ greatly. When *Admit* is the dependent variable, the results closely follow the theoretical predictions. However, when *Not Deny* is the dependent variable these results disappear. Alternative econometric formulations yield similar results. These results suggest that we need to treat non-responders separately.

Unordered probit We can adapt this approach to deal with multiple outcomes by using the unordered probit model.[14] I was unable to create a full recursive unordered probit model (with a *Retire* equation). Therefore, I ran unordered three versions of the unordered probits: the first two using the fitted values from the retired equations in the *Admit* and *Not Deny* in the recursive bivariate models and the third using the actual retirement variable (without instrumenting). The results are shown in table 5. The base case is no response. The coefficients show the effects of the variables in increasing the probability of admitting or denying (rather than not responding).

As we can see from this table the choice of variable used for the *Retire* does not have much effect on the results, so it is unlikely this is a serious issue. This is supported by the insignificance of ρ (the correlation between the errors in the

[14] An alternative approach is ordered probit. However, ordered probit restricts the coefficients to be the same. Given the results presented in this paper, it seems unlikely that this restriction is appropriate.

TABLE 4:
RECURSIVE BIVARIATE PROBIT MODEL OF
DECISIONS TO RETIRE AND ADMIT

Variable	Coefficients Admit	Coefficients Not Deny
Equation 1: Retire		
Age Over 65	0.138***	0.129***
	(0.040)	(0.042)
Grandfather Cash	0.034*	0.040**
	(0.019)	(0.018)
Intercept	-1.415***	-1.437***
	(0.149)	(0.145)
Equation 2: Admit / Not Deny		
Retire	-1.480***	0.057
	(0.368)	(0.518)
Security	59.62**	6.089
	(28.56)	(20.65)
Security^2	-49.97**	5.572
	(23.66)	(17.43)
Log Checks	0.166***	0.357***
	(0.048)	(0.047)
Intercept	-18.69**	-2.616
	(8.615)	(6.083)
athrho	0.693	-0.187
	(0.437)	(0.300)
# Obs	268	268

TABLE 5:
UNORDERED PROBIT MODEL OF
DECISIONS TO ADMIT AND DENY

Variable	1	2	3
Equation 1: Admit			
Retire	-0.672*	-0.608*	-0.752*
	(0.375)	(0.352)	(0.433)
Security	99.52**	99.15**	98.75**
	(44.27)	(44.24)	(45.66)
Security^2	-82.95**	-82.62**	-82.44**
	(36.72)	(36.69)	(37.79)
Log Checks	-0.032	-0.031	-0.024
	(0.075)	(0.075)	(0.076)
Intercept	-30.50**	-30.32**	-29.37**
	(13.32)	(13.31)	(13.76)
Equation 2: Deny			
Retire	-0.229	-0.241	0.056
	(0.268)	(0.365)	(0.346)
Security	24.93	24.87	24.69
	(32.98)	(33.00)	(32.99)
Security^2	-20.53	-20.46	-20.38
	(27.88)	(27.89)	(27.88)
Log Checks	-0.474***	-0.473***	-0.478***
	(0.072)	(0.072)	(0.073)
Intercept	-5.979	-5.983	-5.633
	(9.718)	(9.722)	(9.709)
# Obs	268	268	268

1: Retire = fitted values from *Admit* recursive model
2: Retire = fitted values from *Not Deny* recursive model
3: Retire = actual retirement decision

recursive bivariate model). Therefore, the inability to do a full recursive model probably does not invalidate our results.

Table 5 demonstrates that the choice to admit is quite different than just a choice not to deny. Politicians are more likely to admit if they plan to retire and there is the convex relationship with security as predicted by the theory. However, the number of checks written is not significant. On the other hand, the number of checks written is the only significant factor in the deny equation. A politician who has written many checks is far less likely to deny writing them.

Perhaps we could summarize in this way. A politician who writes many checks is highly unlikely to deny, so is effectively choosing between not responding and admitting; a politician who has written few checks is unlikely not to respond, so he is choosing between admitting and denying. The remaining choices are determined by the retirement / security situation of the politician as suggested in the theory.

In order to explain this, we would need to augment the theory to account for why writing more checks makes not responding preferable to denying. In order to understand this preference, we would need to make some assumptions about how the beliefs of the electorate change with the number of checks written when the politician does not respond or denies.

One possibility is that the electorate are prepared to overlook a few checks and so may not view a politician who has written a few checks and denied as having demonstrated his dishonesty (at least not fully). However, it may not be so forgiving of a politician who denied writing checks when he had written many. On the other hand, a politician who did not respond may be able to avoid losing his reputation for honesty regardless of how many checks he had written. Providing a formal basis for this argument is non-trivial and beyond the scope of this paper but it may provide an avenue for future research.

Heckman selection model We can provide a little more structure on the politicians' decisions if we assume they are taken as part of a two-stage process. In the first stage, a politician decides whether or not to respond; in the second stage, if he has decided to respond, he chooses whether to admit or deny. We can model this with a Heckman selection model. As with the unordered probit, it is not possible to model the retirement decision integrally, so we present the results for the same three retirement variables as before. Again, the exact choice does not matter for most of the inferences - the exceptions will be noted.

The three equations are similar with the exception of the *Retire* coefficient (and its significance) in the equation using the actual retirement decision. This could be benign - we could be taking advantage of information lost in the fitted val-

TABLE 6:
HECKMAN SELECTION MODEL OF
DECISION TO RESPOND

Variable	1	2	3
Equation 1: Admit (no response excluded)			
Retire	-0.351	-0.303	-0.731**
	(0.284)	(0.265)	(0.293)
Security	60.16*	59.98*	59.36*
	(33.52)	(33.45)	(30.60)
Security^2	-49.97*	-49.82*	-49.44**
	(27.75)	(25.24)	(25.30)
Log Checks	0.267**	0.268**	0.217***
	(0.129)	(0.130)	(0.050)
Intercept	-19.86**	-19.76*	-19.03**
	(10.14)	(10.11)	(9.270)
Equation 2: Respond			
Retire	-0.257	-0.257	-0.127
	(0.183)	(0.182)	(0.231)
Security	36.94	36.86	35.46
	(22.70)	(22.72)	(22.13)
Security^2	-30.92	-30.84	-29.80
	(19.18)	(19.20)	(18.65)
Log Checks	-0.233***	-0.232***	-0.230***
	(0.047)	(0.047)	(0.045)
Intercept	-9.950	-9.933	-9.164
	(6.686)	(9.691)	(6.54)
athrho	0.698	0.698	14.36
(0.977)	(0.990)	(5231)	
# Obs (uncensored)	268 (194)	268 (194)	268 (194)

1: Retire = fitted values from *Admit* recursive model
2: Retire = fitted values from *Not Deny* recursive model
3: Retire = actual retirement decision

ues and there is little evidence that the retirement decision is endogenous. However, as we cannot guarantee the actual retirement decision is exogenous, it seems safer to focus on the estimates in the first two equations.

A politician who has written many checks is far less likely to respond than one who has written a few. Conditional on having responded, more checks make it more likely that he will admit. This is consistent with our interpretation of the unordered probit model: many checks imply a choice between no response and admit; few checks imply a choice between denying and admitting.

The other variables have similar effects on both stages of the decision process. In the second stage (admit versus deny) the coefficients are as predicted by theory, although retirement is insignificant and the security variables only borderline significant. Interestingly, these three variables have similar signs and significance in the first stage (respond or not) too.

Why are the levels of significance so low? One possibility is that each of these equations is capturing part of the decision process. For those with many checks, the key decision is whether to respond at all - once he has decided to respond, he will likely admit. However, for those who have written few checks, the key decision is in the second stage. He will always respond - the question is whether he should admit or deny. This might explain why we get strong results when we analyzed the decision as admit versus (deny or no response) but far weaker results when we considered (admit or no response) versus deny.

Graphical representation of security effect It can be difficult to interpret the absolute size of probit coefficients. This is particularly important in the case of the security variables. Our theory suggests that security will increase likelihood to tell the truth over some range, but my decrease subsequently. It would be useful to know if the range implied by our regressions is politically significant.

Figure 1 shows the effect of security on the likelihood of a politician admitting given mean values for all the other variables.[15] Remember that *Security* is the fitted values of the minimum percentage of the vote in the 1992 primary or general elections.[16]

The estimates are remarkably consistent. According to them all, the probability of admitting to checks peaks at about 25% for security of around 60%. A politician with a security level of 60% would be about two and half times more likely to admit to the scandal than a politician with a security level of 50%. This

[15]The unconditional probability that a politician who wrote checks admitted to it is 20.5% (55/268). The conditional probabilities presented in the graphs are consistent with this.

[16]See table 3

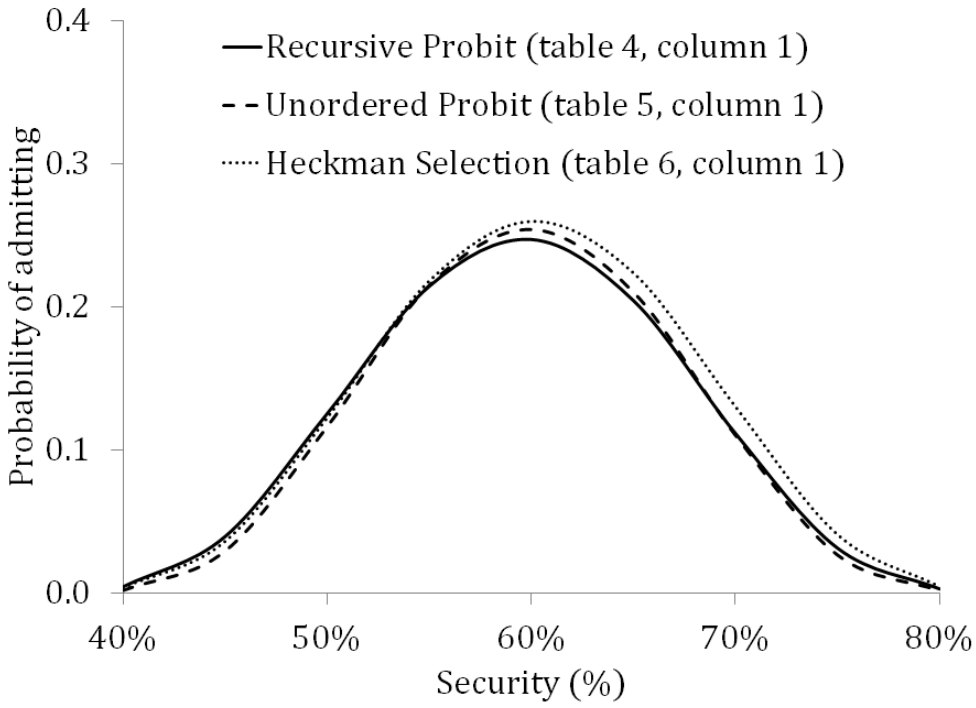

Figure 1: Effect of security on admission rate

supports the prediction that politicians in marginal seats (who won either their primary or general election with only 50% of the vote) would be less likely to admit to scandal than those in more secure seats (who won both their primary and general election with at least 60% of the vote). The effect of security on the willingness of politicians to admit to scandal appears to be politically important.

4 Implications

Though this paper focused on one political application, the same basic model could be applied more generally to situations where an individual or organization has the opportunity to lie.

Suppose a company notices a flaw with one of its products. There is some chance the problem will pass unnoticed by users, but there is some chance it will cause serious problems. If the company could admit to the flaw and offer to repair / replace the product, but this would involve significant cost. On the other hand, it could conceal the flaw - it might get away without any costs, but it risks a major scandal with much larger costs than the initial recall. Furthermore, the scandal

will damage its credibility. Applying the theory in this paper would predict that companies would be more likely to conceal the flaw if:

- The probability of getting caught is low
- The value of reputation is low
- The company is in financial difficulty and could go bankrupt if it admits

We could even apply the theory to personal relationships. Admitting to an affair will probably have a negative effect on a relationship, but not as bad as if the affair was concealed and subsequently discovered. One of the predictions of the theory would be that people in relationships that are already weak may be more likely to conceal problems because revealing them would fatally damage the relationship. Strong relationships, however, might be able to survive harsh honesty and so the incentives might be greater to admit to misbehavior. This could lead to a downward spiral or dishonesty and weakening relations in one case, and the opposite in the other.

The problem with extending the analysis to these or other examples is that comparable data is not easy to find. Scandals - whether corporate, political or personal - tend to affect one or a few individuals or organizations, so it is hard to get an econometrically significant sample. This is one reason why the House bank scandal is an important case to consider.

Appendix 1: Theoretical Model

Model

Politicians' type varies across two dimensions. The probabilities are independent.

- Honest or opportunistic: Honest politicians always admit the truth; opportunistic politicians can lie. Politicians are honest with prior probability p_H.
- Innocent or guilty: Innocent politicians have not committed a crime; guilty politicians have done so. Politicians are innocent with prior probability p_I.

Politicians can either admit or deny wrong doing after which the electorate learns whether they are innocent or guilty with probability π. Signals are not certifiable. I assume that politicians maximize their popularity, $f(\mu_I, \mu_H)$ which depends on the beliefs of the electorate about the probabilities of them being innocent (μ_I) and honest (μ_H) at the end of the game.

Analysis

Honest politicians always admit to the truth, so they have no choices to consider. We will focus on the choices of the opportunistic politicians. We will look for equilibria where no politician admits to a crime which he has not committed.

Expected payoffs

Let the probability that the opportunistic politician admits to his crime be x. The expected payoff for a politician denying is increasing in x while that of admitting is decreasing in x.

$$\begin{aligned} U_D(x) &= \pi f(\mu_I(D,C), \mu_H(D,C)) + (1-\pi) f(\mu_I(D,N), \mu_H(D,N)) \\ &= \pi f(0,0) + (1-\pi) f\left(\frac{p_I}{p_I + (1-p_I)(1-x)}, \frac{p_I p_H}{p_I + (1-p_I)(1-x)}\right) \end{aligned}$$

$$\begin{aligned} U_A(x) &= f(\mu_I(A), \mu_H(A)) \\ &= f\left(0, \frac{(1-p_I)p_H}{(1-p_I)(p_H + (1-p_H)x)}\right) \end{aligned}$$

Therefore the payoff to admitting minus the payoff to denying ($V(x) = U_A(x) - U_D(x)$ is decreasing in x. For the purposes of comparative statics, I assume that we are in third case with an interior solution, that is $\exists \hat{x} : V(\hat{x}) = 0; V(x) < 0, \forall x \in [0, \hat{x}); V(x) > 0, \forall x \in (\hat{x}, 0]$.

Comparative statics

Probability of getting caught - π If a politician lies, he is always better off if he is not caught than if he is caught. His reputations for both honesty and innocence will be higher in the latter case than the former. Therefore, $V(x|\pi)$ must be decreasing in π and the equilibrium probability that the politician lies decreases with the probability that he will get caught.

Relative importance of innocence and honesty for popularity - $\frac{df}{d\mu_I}$ versus $\frac{df}{d\mu_H}$ A politician facing an electorate that is more concerned with innocence and less with honesty will have an incentive to lie more. As $V(x)$ is decreasing in x, the equilibrium probability of admission will also decline.[17]

Consider a function $g(\mu_I, z)$ where $g(\mu_I', z) - g(\mu_I, z) > f(\mu_I', z) - f(\mu_I, z)$ and $g(z, \mu_H') - g(z, \mu_H) < f(z, \mu_H') - f(z, \mu_H)$ for all μ_I', μ_I such that $1 \geq \mu_I' > \mu_I \geq 0$ and all μ_H', μ_H such that $1 \geq \mu_H' > \mu_H \geq 0$ and where z can take any value between zero and one.

Suppose that under the popularity function f, the politician would be at an interior equilibrium choosing $\hat{x}$ and that all the reputations in the following equations assume $\hat{x}$ is the strategy of the politician.

$$\begin{aligned}
V_g(\hat{x}) = \quad & \pi\left(g(0,\mu_H(A)) - g(0,0)\right) \\
& +(1-\pi)\left(g(0,\mu_H(A)) - g(\mu_I(D,N),\mu_H(D,N))\right) \\
= \quad & \pi\left(g(0,\mu_H(A)) - g(0,0)\right) \\
& +(1-\pi)\left(g(0,\mu_H(A)) - g(0,\mu_H(D,N))\right) \\
& +(1-\pi)\left(g(0,\mu_H(D,N)) - g(\mu_I(D,N),\mu_H(D,N))\right) \\
< \quad & \pi\left(f(0,\mu_H(A)) - f(0,0)\right) \\
& +(1-\pi)\left(f(0,\mu_H(A)) - f(0,\mu_H(D,N))\right) \\
& +(1-\pi)\left(f(0,\mu_H(D,N)) - f(\mu_I(D,N),\mu_H(D,N))\right) \\
= \quad & \pi\left(f(0,\mu_H(A)) - f(0,0)\right) \\
& +(1-\pi)\left(f(0,\mu_H(A)) - f(\mu_I(D,N),\mu_H(D,N))\right) \\
= \quad & V_f(\hat{x}) = 0
\end{aligned}$$

[17] As an aside: if the reverse is true - the electorate values honesty more than innocence - politicians will tend to lie less. This might provide some explanation for the old political adage that it is the cover-up rather than the crime that hurts politicians. If this so, then perhaps voters are adjusting their behavior to encourage honesty in politicians.

Convexity of the popularity function - $f(\mu_I, \mu_H)$

A politician whose objective function (as a function of popularity) is more convex would be more likely to lie.

Suppose h is a convex function. Let $g(\mu_I, \mu_H) = h(f(\mu_I, \mu_H))$. Suppose with a popularity function f, the equilibrium level of admission is $\hat{x}$ and that all the following equations assume this degree of admission.

$$
\begin{aligned}
&V_f(\hat{x}) = 0 \Rightarrow \\
&f(\mu_I(A), \mu_H(A)) \\
&= \pi f(\mu_I(D,C), \mu_H(D,C)) + (1-\pi) f(\mu_I(D,N), \mu_H(D,N))
\end{aligned}
$$

Because g is a convex transformation of f,

$$
\begin{aligned}
&g(\mu_I(A), \mu_H(A)) \\
&< \pi g(\mu_I(D,C), \mu_H(D,C)) + (1-\pi) g(\mu_I(D,N), \mu_H(D,N)) \\
&\Rightarrow V_g(\hat{x}) < 0
\end{aligned}
$$

Appendix 2: Empirical variables

TABLE 1.5
VARIABLES: DEFINITIONS AND SOURCES

Variable	Definition	Source
1990 General Vote	Vote % 1990 general election	CQ
Admit	1 if admitted to writing checks	WP
Age Over 65	$\max\{0, Age - 65\}$	CQ
Grandfather Cash	$\log(1 + House\ 1980 * Cash)$ *House 1980*=1 if in House in 1980 *Cash* Cash on hand 12/31/1990	 CQ ICPSR
Log Checks	log (#Checks)	NYT
Minimum{% 1992 primary vote, % 1992 general vote}		CQ
Not Deny	1 if did not deny writing checks	WP
Redistricting	1 if incumbents' districts merged	CQ
$\lvert Redist\ Partisan\ Chg \rvert$	$\lvert Bush\ New - Bush\ Old \rvert$ *Bush New* Bush vote 1988 new dist *Bush Old* Bush vote 1988 old dist	NRCC
Redist Partisan Chg	*Bush New-Bush Old* if incumb Rep *Bush Old-Bush New* if incumb Dem	NRCC
Retire	1 if retired before 1992 (or fitted)	CQ
Security	See text	

WP - Washington Post 10/7/91
CQ - Congressional Quarterly
ICPSR - Inter-University Consortium for
Political and Social Research #6336
NYT - New York Times 4/17/92
NRCC - "1992 Congressional Redistricting Data Summary",
National Republican Congressional Committee

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