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Abstract

According to retrospective voting a bad economy hurts the incumbent party and vice versa. According to risk-aversion voting a bad economy favors the Democrats over the Republicans and vice versa. This paper provides a test of both theories and rejects risk-aversion voting.

1 Introduction

There is strong evidence that the state of the economy has an effect on voting behavior. In my voting equation for the United States[1] the Democratic share of the two-party vote for president depends on inflation and output variables plus some incumbency variables. A good economy favors the incumbent party, and vice versa. The voting behavior that is reflected in this equation is sometimes called "retrospective" voting, which will be used here.

In a recent paper Pástor and Veronesi (2020) (PV) argue that another aspect of voting behavior is what they call "risk-aversion" voting. The idea is that when risk aversion is high, people tend to vote more for Democrats, and vice versa. PV

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[1]The latest published paper on this work is Fair (2009). The latest version of the equation is on my website. Fair (1996) contains a discussion of the history of the equation.

argue that risk aversion is high when the economy is doing poorly, so, other things being equal, a bad economy favors the Democrats. Retrospective theory says this is true only if the Republicans are in power. If the Democrats are in power a bad economy hurts their chances. PV also argue that risk aversion is low when the economy is doing well, which favors the Republicans. Again, retrospective theory says this is true only if the Republicans are in power. The two theories thus agree when the Republicans are in power, but not when the Democrats are.

The risk-aversion theory is straightforward to test using my voting equation. Let G_t denote the growth rate of real per capita GDP in the first three quarters of election year t, which is the growth variable in the equation. Since the dependent variable is the Democratic vote share, the growth variable enters the equation as $G_t I_t$, where I_t is 1 if there is a Democratic incumbent and -1 if there is a Republican incumbent. Retrospective theory says this variable should have a positive coefficient estimate. Risk-aversion theory ignores who is in power and simply postulates that a large growth rate benefits the Republicans and a low growth rate benefits the Democrats. In other words, the theory argues that G_t should be the growth variable, not G_t multiplied by I_t. In practice both effects may be operating, and this can be tested by simply adding both $G_t I_t$ and G_t to the equation. If there is risk-aversion voting, the coefficient estimate of G_t should be negative and significant. For example, when G_t is high and the Democrats are in power, there should be some positive effect from $G_t I_t$ because of retrospective voting, but also some negative effect from G_t because of risk-aversion voting. It will be seen that the coefficient estimate of G_t is positive, contrary to the risk-aversion theory, and not significant. The results thus do not support risk-aversion voting.

2 The Equation

The equation will only be briefly outlined here. A complete discussion is in Fair (2009), which also includes equations for on-term and off-term House elections. The theory is that voters vote for the candidate who gives them the highest expected utility, where utility may depend on their perception of the economy. Under certain assumptions the linear equation that is estimated can be derived. The equation will first be presented and then a few caveats mentioned.

The variables in the equation are listed in Table 1. The dependent variable is the Democratic share of the two party vote. The vote share is used because there is much more information in it regarding voting behavior than in simply a win/lose variable. There are two output variables. G is the growth rate in the year of the election, and Z picks up strong growth in any of the 15 quarters. The inflation variable, P, is inflation over the entire 15 quarter period. The two incumbency variables are $DPER$, a dummy variable that indicates whether the incumbent president is running again, and DUR, a variable that measures how long a party has been in the White House.

The dummy variable WAR pertains to the elections of 1920, 1944, and 1948, where the economy was affected by World Wars I and II. The values of Z and P are quite large in these periods, and they were set to zero—in other words, dummied out. This results in a different constant term in the equation for these three elections, which is what WAR is picking up.

The equation is estimated for the 1916–2016 period, 26 elections. The estimates are in Table 2. The three economic variables are multiplied by I since the vote share is the Democratic vote share. All three are significant. The estimates say that for each percentage point increase in G the vote share increases by 0.673 points, for each percentage point increase in P the vote share decreases by 0.721 points, and for each new strong growth quarter the vote share increases by 0.792 points. The person effect is 2.25 and the duration effect is -3.76. The estimated standard

Table 1
Variables in Vote Equation

Variable	Definition
V	Democratic share of the two-party presidential vote.
I	1 if there is a Democratic presidential incumbent at the time of the election and -1 if there is a Republican presidential incumbent.
G	growth rate of real per capita GDP in the first three quarters of the on-term election year (annual rate).
P	absolute value of the growth rate of the GDP deflator in the first 15 quarters of the administration (annual rate) except for 1920, 1944, and 1948, where the values are zero.
Z	number of quarters in the first 15 quarters of the administration in which the growth rate of real per capita GDP is greater than 3.2 percent at an annual rate except for 1920, 1944, and 1948, where the values are zero.
$DPER$	1 if a Democratic presidential incumbent is running again, -1 if a Republican presidential incumbent is running again, and 0 otherwise.
DUR	0 if either party has been in the White House for one term, 1 [-1] if the Democratic [Republican] party has been in the White House for two consecutive terms, 1.25 [-1.25] if the Democratic [Republican] party has been in the White House for three consecutive terms, 1.50 [-1.50] if the Democratic [Republican] party has been in the White House for four consecutive terms, and so on.
WAR	1 for the elections of 1920, 1944, and 1948, and 0 otherwise.

• Sample period: 1916, 1920, . . . , 2016, 26 observations.

error is 2.95.

The ex post predictions are presented in Table 3 along with the data used in the estimation. The largest error is for 1992, where the equation underpredicted the votes for the Democrats (W. Clinton). The dependent variable is the share of the two party vote. The 1992 error is much smaller if the third party Perot votes are included and given to the Republicans. I did not do this because the exit polls

Table 2
Estimated Equations
Dependent Variable is V

	Base Eq.	G added
$G \cdot I$	0.673	0.704
	(5.21)	(5.63)
$P \cdot I$	-0.721	-0.681
	(-2.19)	(-2.16)
$Z \cdot I$	0.792	0.695
	(3.01)	(2.69)
$DPER$	2.25	0.74
	(1.45)	(0.42)
DUR	-3.76	-4.85
	(-2.73)	(-3.38)
I	0.21	1.82
	(0.09)	(0.74)
WAR	3.25	4.73
	(1.18)	(1.69)
$CNST$	48.06	47.67
	(73.13)	(70.88)
G		0.222
		(1.63)
SE	2.95	2.83
R^2	0.862	0.880
No. obs.	26	26

See Table 1.
OLS; t-statistics in parentheses.

suggested that Perot took about equally from W. Clinton and G.H. Bush. The equation also does not do well in 2016, where the Democrats (H. Clinton) did much better than predicted and in fact won the popular vote. The landslides (say

Table 3
Ex Post Predictions and Data

		V	$\hat{V}$	$\hat{V}$ -V	I	G	P	Z	DP -ER	DUR
D	1916	51.7	51.3	-0.3	1	2.2	4.3	3	1	0.00
D	1920	36.1	40.1	3.9	1	-11.5	0.0	0	0	1.00
R	1924	41.7	44.0	2.3	-1	-3.9	5.2	10	-1	0.00
R	1928	41.2	43.1	1.8	-1	4.6	0.2	7	0	-1.00
R	1932	59.1	61.8	2.6	-1	-14.4	6.9	4	-1	-1.25
D	1936	62.2	63.7	1.5	1	11.6	2.5	9	1	0.00
D	1940	55.0	55.7	0.7	1	4.0	0.0	8	1	1.00
D	1944	53.8	51.8	-2.0	1	4.1	0.0	0	1	1.25
D	1948	52.3	50.4	-1.9	1	3.3	0.0	0	1	1.50
D	1952	44.7	46.2	1.5	1	1.0	2.4	7	0	1.75
R	1956	42.9	43.8	0.9	-1	-1.2	1.9	5	-1	0.00
R	1960	50.1	48.6	-1.4	-1	0.6	2.0	5	0	-1.00
D	1964	61.2	60.2	-1.0	1	5.1	1.2	9	1	0.00
D	1968	49.4	51.3	1.8	1	5.1	3.1	7	0	1.00
R	1972	38.2	42.0	3.7	-1	5.9	4.8	4	-1	0.00
R	1976	51.0	50.5	-0.6	-1	3.8	7.5	5	0	-1.00
D	1980	44.8	46.4	1.6	1	-3.6	7.8	5	1	0.00
R	1984	40.9	39.4	-1.5	-1	5.4	5.3	8	-1	0.00
R	1988	46.2	48.9	2.7	-1	2.3	2.8	4	0	-1.00
R	1992	53.6	48.2	-5.4	-1	3.1	3.2	3	-1	-1.25
D	1996	54.7	54.4	-0.3	1	3.3	2.0	4	1	0.00
D	2000	50.3	50.3	0.0	1	2.1	1.6	7	0	1.00
R	2004	48.8	44.1	-4.7	-1	2.1	2.1	2	-1	0.00
R	2008	53.7	53.1	-0.6	-1	-1.7	2.7	2	0	-1.00
D	2012	52.0	51.8	-0.2	1	1.1	1.4	2	1	0.00
D	2016	51.2	45.9	-5.3	1	1.2	1.4	2	0	1.00
MAE				1.9						

- See Table 1.
- D or R: party in power at the time of the election.
- $\hat{V}$ = ex post prediction of V from base equation in Table 2.
- MAE = mean absolute error.
- WAR is 1 in 1920, 1944, 1948 and 0 otherwise.
- The values of P for 1920, 1944, and 1948 before multiplication by zero are 16.535, 5.478, and 8.718, respectively, and the values of Z are 5, 14, and 5.

vote share less than 43 percent or greater than 57 percent) are generally predicted well. There are nine cases: 1920, 1924, 1928, 1932, 1936, 1956, 1964, 1972, and 1984. The mean absolute error (MAE) for these cases is 2.1. The overall MAE is 1.9.

An important caveat about this work is the danger of spurious correlation because of data mining. The lags were chosen for G and P because they gave the best fit. Dummying out P and Z for the three war elections may be problematic. Incrementing DUR in the way I did was on goodness of fit grounds. Finally, and possibly most important, the variable Z was added after the 1992 election, and the 3.2 cutoff was chosen because it gave the best fit at the time. Z is a "good news" variable in that it measures the number of quarters in the administration in which the growth rate was noticeably strong. There is some evidence from psychology experiments that people tend to remember extreme outcomes more than normal ones, and Z can be considered to be a measure of extreme positive growth outcomes. A "bad news" variable was also tried, but it was not significant in any of the specifications.

In defense of this work, most of the results are robust to small changes in the lags, cutoffs, and increments. The growth variable G has been significant with a fairly stable coefficient estimate since the beginning of this work in 1976. The specification of the equation has not changed since the changes after the 1992 election, so unchanged for 6 elections or 24 years! The only change is that the equation is reestimaed with one extra observation after each election.

If the addition of Z is spurious in that it is mostly picking up the error in 1992, one would expect it would lose it significance for estimation periods that end before 1992. When the equation is estimated only through the 1960 election (1916–1960), 12 observations, 4 degrees of freedom, the coefficient estimates and t-statistics for the economic variables are: $G \cdot I$: 0.818 (7.80), $P \cdot I$: -0.397 (-1.07), $Z \cdot I$: 0.736 (3.02). These estimates seem remarkably close to those in Table 2

given the small sample size. In particular, Z is significant with a similar coefficient estimate. Although Z was discovered only after the 1992 election, it could have been discovered earlier by someone brighter.

3 Test of Risk-Aversion Voting

Before adding G to the equation, it is informative to look at some of the elections in Table 3. If risk-aversion voting exists in addition to retrospective voting, one would expect the equation, which only relies on retrospective voting, to underpredict the vote share when the Democrats are in power and the economy is bad. The main example is 1980, where the economy was bad and Carter lost, receiving only 44.8 percent of the two party vote. The equation predicted 46.4 percent, for an error of 1.6, predicted minus actual. According to risk-aversion voting the bad economy should have been a plus for the Democrats, other things being equal, so since the equation ignores risk-aversion voting the actual vote share should have been larger than predicted (negative error term) when in fact it was smaller. The same story holds for the 1920 election, although probably less weight should be put on it because of the war. When the Democrats were in power and the economy did well, they should have done worse than predicted (positive error terms). The main examples are 1936, 1964, and 1968. They did worse than predicted in 1936 and 1968, but better in 1964. The errors in all these examples are fairly small. These stories are just suggestive, but the results do not stand out as supporting risk-aversion voting. The formal test is to added G, which is done in Table 2.

The coefficient estimate of G in Table 2 is not significant. Also, it is positive, contrary to what risk-aversion voting would predict. The coefficient estimates of the three economic variables do not change much. The coefficient estimate of $DPER$ fell from 2.25 to 0.74, although for neither equation is it significant. The results thus do not support risk-aversion voting.

PV arrived at their view by looking at the times between 1932 and 2012 in which there was a switch of parties. There were 5 switches from R to D, 1932, 1960, 1976, 1992, and 2008, and 4 switches from D to R, 1952, 1968, 1980, 2000. They find (PV, Table 5) significant results consistent with risk-aversion voting for R to D, namely a bad economy hurts Republicans, but not from D to R. They attribute the insignificant results for D to R to risk-aversion voting and retrospective voting essentially cancelling each other out. A problem with this approach is that just having a zero/one variable for elections discards useful information about voting behavior. Take the election of 2000 for example. There was a switch from D to R, but the election was very close and Gore actually got more votes that G.W. Bush. In 1932 there was a switch from R to D, with Roosevelt getting 59.1 percent of the two party vote, whereas there was also a switch from R to D in 1960 and 1976, with Kennedy getting only 50.1 percent of the vote share and Carter getting only 51.0 percent. These differences in voting behavior are not captured by dummy variables.

Finally, PV also argue that risk-aversion voting is supported by the fact that stock returns and output growth do better under Democrats. The argument is that Democrats tend to get voted in when the economy is weak (risk aversion high), where stock returns and output growth then mean revert during the administration. This argument requires that the economy does in fact do better under the Democrats. Regarding stock returns, Santa-Clara and Valkanov (2003) examined the period 1927–1998 and found significant differences between Democratic and Republican administrations. PV extended the sample period to 1927–2015 and also found significant differences. Regarding output growth, Blinder and Watson (2016) examined the 16 administrations between Truman-2 and Obama-1. They found that output growth and other measures of economic activity are significantly higher under the Democrats. PV got similar results for the 1930–2015 period.

These results are, however, sensitive to adding more observations. In Fair (2021) 5 observations were added, the elections of 1916, 1920, 1924, 1928,

and 2020, and the mean differences between the two parties became insignificant. Ten additional elections were also added, 1876—1912, with a similar conclusion. There is little theory to suggest that stock returns and output growth should differ between Democratic and Republican administrations, and the expanded results support no significant differences.

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