APPENDIX: ECONOMIC AND POLITICS AND ELECTORAL PREFERENCES

Like many attempts at forecasting presidential elections, our paper dwells on economic conditions. Our measure is the early indicator of Leading Indicators through Quarter 13 of the election cycle. The other predictor is trial-heat polls, measured at various points during the election year. The polls absorb economic effects plus other factors that affect vote intentions over the campaign, which are partly evident from approval ratings of the sitting president (Erikson and Wlezien 2012). In this appendix, we elaborate on three points. First, we more clearly describe our measure of the cumulative growth of leading economic indicators. Second, we consider the net importance of the economy apart from other non-economic causes of the vote. Third, we consider the role of a variable that we exclude from our main analysis—the length of time the presidential party has served in office.

Cumulative Growth in Leading Economic Indicators

The text provides a basic description of the measure, and here we provide more detail about the actual construction. To begin, note that The Conference Board's leading economic indicators (LEI) index is a composite of 10 components, nine of which are objective: the monthly report on unemployment and average earnings and workweek hours, average weekly claims for unemployment insurance, orders for consumer goods and materials, orders for nondefense capital goods, building permits, Standard and Poor's 500 stock prices, the money supply (M2), the interest rate spread between 10-year Treasury bonds and the federal funds rate, and an index of manufacturing. The one perceptual component is the University of Michigan's index of consumer expectations. The idea is that the indicators tap different aspects of the economy and provide a more accurate and reliable measure than single indicators, and the index actually has

changed over time (see below). For more information, see The Conference Board web site: www.globalindicators.org.

There actually are different series of leading economic indicators (LEI). The first began in 1949 and ended in 1976. The second, newer series began in 1959 and continued through 2004. These are the two series on which we have relied in previous analyses. The Conference Board changed the LEI index again in 2005 and once more in 2012, resulting in a new series covering 1959 to the present, which we use. To preserve data for the earlier years, we use the first (1949–1976) series as well. It was our original assumption years ago that, although the old and new series would differ in levels (and first differences), percentage change measures would be comparable. Based on analysis of the overlapping years, however, we discovered that this was not true, and so it was necessary to predict the new LEI data from the old using the overlapping years.

To begin, we created the percentage change in the monthly leading economic indicators, that is, $100 \times (LEI_t – LEI_{t-1})/LEI_{t-1}$. Notice that the numbers are not annualized. Next, we calculated the quarterly mean of these monthly numbers. For 1949–1958, we generated predicted quarterly numbers based on a regression of the means using the new series on the means using the old series in overlapping years (1959–1976). Then, we weight each quarter 0.80 as much as the following quarter (i.e., 1.25 the weight of the previous quarter), as a geometric rate of decay—the parameter (.80) is chosen because it maximizes the correlation between the cumulative LEI series and the incumbent party vote. Thus, LEI growth in quarter 13 counts approximately fourteen times $(1/.8^{12})$ as much as LEI growth in the first quarter of the president's term. To be absolutely clear, the weight for quarter 13 is 1.0, for quarter 12 it is 0.80, for quarter 11 it is 0.64, and so on to 0.8^{12} in the first quarter of the term. Finally, we sum the weighted quarterly growth rates through quarter 13 and then calculate the average. To calculate the average, we divide the

sum of the weighted growth rates by the sum of the weights for the thirteen quarters, not the number of quarters (13) itself. in the first quarter of the presidential term. The sum of quarterly weights over the 13 quarters is 4.73.

How important is the Economy?

How much are presidential vote outcomes determined by economic conditions? More is involved, including issues. It can be shown that presidential parties gain votes by moving in the direction of the median voter (Erikson and Wlezien, 2012; Erikson, MacKuen and Stimson 2002). And candidates' character and other attributes matter. As Trump's track record through 2019 attests, healthy economic conditions do not guarantee that the president will be popular.

One basic indicator of the economic component of the vote is the amount of variance in the vote that economic indicators "explain." We can provide an estimate by regressing the incumbent party vote share on our economic measure of cumulative LEI growth alone (with no other variables). Doing this for the 17 elections between 1952 and 2016 produces an adjusted R-squared of 0.57, which implies that about 57% of the variance in the vote is due to economics and the remaining 43% to other, non-economic factors. There are reasons to think this estimate understates economic effects, as LEI does not capture everything about the economy that matters to voters. There also are reasons to think it overstates those effects, as economic and non-economic factors are likely to be correlated. And we should keep in mind that our analysis is based on but 17 elections, a small number. Even accepting the 57% estimate, it is an average, where economics matter more in some elections and less in others.

Just as we can overestimate the role of the economy at the macro-level, we can overestimate how much individual voters are swayed by economic conditions at the micro-level. There is a literature too numerous to cite which explores which aspects of the economy matter to individual voters and when this influence occurs. When the economy clearly affects an election, such as the Great Recession of 2008 or the economic recovery of 1984, it takes a shift by relatively few voters to make the difference. When the economy becomes more or less prosperous, only a few votes change, but they move in one partisan direction on balance, favoring the presidential party for prosperity and punishing it for its absence. And research has shown that the strength of partisan identification can attenuate economic effects – and possibly those of other short-term forces (Kayser and Wlezien 2011; Abramowitz 2012).

Time in Office

One important political variable that our model ignores is the "cost of ruling," which has been shown to impact election results around the world (see Paldam, 1986; Cuzan, 2015). This is the tendency for political parties to lose voter share the longer they control government, and it applies in US presidential elections (Abramowitz 1988; Norpoth 2014; Wlezien 2017). Our vote forecasts in the text ignore the variable and here is why.

While time in office matters for predicting the vote, its effect is almost fully absorbed by the polls as early as the first quarter of the election year (see Erikson and Wlezien 2016). Because polls incorporate the electorate's reluctance to extend party tenure after an initial term, including it in the model adds negligibly to our forecast, as can be seen in Table A1. There we show results of estimating our quarterly models of the presidential vote including Abramowitz's (1988) "time for a change" variable, which takes the value "1" if the presidential party has held

the White House for 8 or more years and "0" otherwise. The variable does have an expected

negative coefficient in the Quarter 13 and 14 equations but neither is close to statistically

significant, and adding it does not improve model fit. (Compare with results in Table 1 of the

text.) By Quarter 15, the coefficient turns positive, though is trivially different from 0. To

reiterate, this is not to say – or imply – that party tenure does not matter for the presidential vote,

just that its effects are reflected in the polls from the beginning of the year, and are fully

absorbed before the fall campaign begins. Consider an equation predicting the vote from our

measure of LEI growth and Time for a Change:

$$\text{Vote} = 51.65 + 10.68 \text{ Quarter 13 Cumulative LEI Growth} - 3.80 \text{ Time for a Change}$$
$$\quad (1.41) \quad (2.56) \quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad (1.63)$$

$$R\text{-squared} = .71, \text{ Adjusted } R\text{-squared} = .67, \text{ RMSE} = 3.11$$

Here, the variable has a fairly large, nearly four percentage point effect, and is statistically

significant ($p = .03$). But also notice that the performance of this equation is about equivalent to

one including quarter 13 polls (see Table 1 in the text and Table A1 above).

To highlight the relationships between time in office and the polls, we estimate a model of

quarterly *polls* during election years including our Quarter 13 cumulative LEI growth plus Time

for a Change. The results are shown in Table A2. Here, we can see a profoundly negative,

statistically significant effect of the variable on trial-heat polling throughout the election year.

Importantly, Table A1 also shows that trial-heat polls increasingly absorb LEI growth over time,

as the estimated coefficient on the former grows using later and later polls.

In terms of voter motivations rather than poll results, Table A2 reveals two things. First, over the

course of the campaign, voters increasingly take the economy into account. Secondly, throughout

the campaign, voters are more prone to place their thumb on the scale for the out-party if it has

been out of power for two or more consecutive terms. Of course, and as discussed, other political factors can impact voter preferences as the campaign unfolds.

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TABLE A1

Predicting the Presidential Vote during the Election Year, 1952–2016

	Quarter of the Election Cycle			
	13	14	15	16
Intercept	39.98**	40.11**	27.87**	21.26**
	(7.73)	(5.29)	(2.98)	(3.01)
Cumulative LEI	10.50**	9.14**	6.33**	5.24**
Growth, Quarter 13	(2.53)	(2.36)	(1.63)	(1.34)
Trial Heat	0.20	0.20*	0.45**	0.55**
Polls	(0.13)	(0.09)	(0.08)	(0.07)
Time for a Change	-1.71	-1.77	0.12	0.06
	(2.01)	(1.70)	(1.15)	(0.88)
R-squared	0.74	0.79	0.92	0.95
Adjusted R-squared	0.67	0.75	0.90	0.94
Standard Error				
of the Estimate	3.01	2.74	1.75	1.38
Number of Cases	16	17	17	17

NOTE: Numbers in parentheses are standard errors. The dependent variable is the incumbent-party share of the two-party vote. Cumulative LEI Growth = summed weighted growth in leading economic indicators through quarter 13 of the election cycle, with each quarter weighted .8 times the following quarter. Trial-heat poll results are for the quarter indicated, and are missing in the first quarter of 1952, leaving 16 cases for analysis in quarter 13.

* $p < .05$; ** $p < .01$

TABLE A2

Predicting Presidential Polls during the Election Year, 1952–2016

	Quarter of the Election Cycle			
	13	14	15	16

	13	14	15	16
Intercept	60.50**	56.54**	53.86**	54.33**
	(3.04)	(3.66)	(2.98)	(2.31)
Cumulative LEI Growth, Quarter 13	-0.96	7.56	9.64	9.83*
	(5.58)	(6.64)	(4.82)	(4.19)
Time for a Change	-9.77*	-9.94*	-8.76*	-6.98*
	(3.52)	(4.22)	(3.06)	(2.66)
R-squared	0.39	0.42	0.58	0.58
Adjusted R-squared	0.30	0.34	0.52	0.52
Standard Error of the Estimate	6.65	8.07	5.86	5.06
Number of Cases	16	17	17	17

NOTE: Numbers in parentheses are standard errors. Trial-heat poll results represent the incumbent-party share of the two-party vote in the polls for the quarter (13 through 16) indicated, and are missing in the first quarter of 1952, leaving 16 cases for analysis in the Quarter 13 model. Cumulative LEI Growth = summed weighted growth in leading economic indicators through quarter 13 of the election cycle, with each quarter weighted .8 times the following quarter. Party Tenure = 1 if party of the president has held office two or more consecutive terms, 0 otherwise.

* $p < .05$; ** $p < .01$ (two-tailed).