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A Stress Test: Effects of Economic Outcomes on Presidential Elections

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Introduction

The coronavirus pandemic and associated mitigation efforts have ripped through the global economy, leaving a distinct scar on economic data. Economic indicators have posted readings that are six-sigma shocks beyond precedent, with huge wedges driven between normally close-moving indicators because of unprecedented fiscal and monetary policy actions. This presents an opportunity to distinguish among empirical models differing on the choice of slow moving and closely correlated aggregate indicators. As a case study, this note documents the starkly different predictions from models of the US presidential election outcome in 2020 across variables typically used in the literature on the political economy.

One area of work, at an intersection of economics and political science, where sharp-edged differences in the data may show distinctly is on the influence of economic events on presidential outcomes. In this literature, aggregate economic outcomes have been identified as important drivers of votes for the US president. A repeated finding is that economic growth in the near window before the election rewards the party of the incumbent president. This literature, summarized by Fair (1996), includes contributions by himself (1978), Kramer (1971), Sitgler (1973), and Tufte (1978).

The measure of economic activity varies across these studies, sometimes driven by necessity when long periods are examined with only real gross domestic product (GDP) and the unemployment rate available (as in Kramer (1971) who goes back to 1896, or Fair (1978) who starts in 1916). For others, notably Tufte (1978), it is an asserted first principle that voters look to their wallets when deciding on the president, and politicians, accordingly, manipulate taxes and transfers with an eye to the election, leading to the use of real disposable income as the scale variable.

Another feature of this empirical literature is the assumption (subject to test in some of the papers) that voters are satisficing in their choice of president. Because information is costly to acquire and process and because the benefits from a fully informed decision are small as a single vote barely moves the needle in the aggregate, citizens form an opinion about the incumbent party's competence in economics from recent pre-election data. This creates an incumbency bias—the results must be sufficiently underwhelming to “throw the bums out”—and inclines researchers to use economic outcomes in the year run-up to the election rather than longer-run performance measures.

In normal times, the choice of scale variable matters, at best, at the margin because macro aggregates, driven by a common business cycle, covary greatly. This is especially true at lower frequencies, such as annual observations just in advance of a four-year cycle of presidential elections. However, these are not normal times. The economic effects of the coronavirus pandemic and the attendant mitigation efforts are pulling data observations from the tails of its distributions, with record-shattering contractions in the late spring followed by heady increases mid-summer.¹ Such large changes in the right-hand-side variables of a regression have the potential either to show in stark relief or to strain any relationship. Meanwhile, unprecedented government intervention, both fiscal and monetary, have driven large wedges between what workers produce and citizens receive. In March 2020, the US federal government embarked on the largest fiscal stimulus (relative to nominal GDP) on record, with the Congress passing three stimulus bills in about as many weeks. The Federal Reserve sent its policy rate to its effective lower bound and its asset holdings to \$7 trillion, almost double its prior level.²

The chart on the next page shows the divergence in terms of the measurement of pre-election activity common in the literature, presenting the four-quarter growth rates of real GDP, employment, and real disposable income ending in the second quarter of the general election. (Both GDP and disposable income are in per capita terms.) The presumption for this measurement convention is that voters look back over a limited period and make up their minds using data available around mid-year. The latter represents some combination of opinions settling

around the time the major party candidates are nominated and those waiting to decide closer to the election basing their decision on data that are published with a lag. From 1948 to 2016, the choice among GDP, employment and disposable income would seem to be a matter of preference than sharp distinction. Not so in 2020, when, on the back of a huge fiscal impetus, output and employment fell about 10 percent and disposable income rose 10 percent. A 20 percentage point difference in performance is the stress test we intend to give a simple model of presidential choice.

Economic Activity in Advance of Presidential Election



Four-quarter change ending in the second quarter, percent. Source: Bureaus of Economic Analysis (disposable income and GDP) and Labor Statistics (employment), accessed from FRED.

The next section explains that empirical model of voting. The goal is to present a robust and parsimonious framework for assessing the effect of the business cycle on voting patterns consistent with the logic of the literature and the unique set-up of the US voting system. Our description, however, differs in three practical ways from earlier papers. First, we model the vote share of the incumbent party over time, thus more directly addressing the advantage of White House control in elections rather than the traditional approach of tracking one party’s success over time and relying on dummy variables to catch an incumbency bias. Second, given the unique design of the US system, the vote share that matters (and that is modelled) is that of the Electoral College, not the popular vote. Third, the functional form chosen is the logistic, rather than linear, to keep the vote share bounded between 0 and 1. We then estimate the relationship with three measures of the business cycle, the ones in the above chart, to introduce the true test of modelling choice to come in November, as explained in the section that follows. The concluding section previews what might be learned from the coming stress test and offers some other examples during the time of the pandemic.

A Streamlined Model of the Choice of the President

Rather than copy one specification among the range of empirical work on presidential elections, we employ a simple one that conforms to the advice of this literature and the constraints of the US electoral process. This leaves open one decision—the appropriate measure of economic momentum—for empirical consideration.

Recognize that this focus on aggregate economic outcomes swims against the prevailing tide in this line of research. The literature has shifted over time to incorporate “big data” made available from copious polls and betting markets, as summarized in Williams and Reade (2016). The point of this note is to examine the consequences of disparate paths of aggregate economic outcomes, which conforms better to the earlier literature. Also recognize that the discussion is entirely US-centric, which matters for some of the modelling decisions. Lewis-Beck and Stegmaier (2000) find an important role for economic outcomes in election results among the representative democracies of many advanced economies.

As for what we do, rather than do not, five principles guide our specification.

First, the initial contributions to this literature assumed that citizens did not invest much in informing their voting decisions, following Kramer (1971). Forming an opinion about competence in economic policymaking is costly, and the benefits are small, as one vote will be lost among the other 135 million cast. As a result, satisficing voters are inclined to assume that the incumbent is competent unless recent economic events demonstrate otherwise. Those opinions are thought to be formed in a narrow window, ending in the middle of the election year. Following this logic, our explanation of aggregate economic performance is measured as the growth of an indicator over the four quarters ending in the second quarter.³ Of note, such assumptions about behavior drew objections from Stigler (1973), who favored a rational voter with more complete information.

Second, if there is an incumbency bias, the logical specification chosen here is to explain the electoral success of the incumbent party. The alternative strategy is to pick one side of the aisle and model their performance over time, but this requires adding dummies to the right-hand-side of the equation. We prefer a more parsimonious specification that directly estimates the bias through the choice of the left-hand-side variable.

Third, given the issue to investigate is electoral success, we attempt to explain the vote share in the Electoral Congress. Modelling the vote share of the public, the usual route, is an intermediate step that misled in 2000 and 2016.

Fourth, the point of this inquiry is to find the consequences of disposable income veering from the path of other aggregate economic variables. The Bureau of Economic Analysis only starts reporting the level of disposable income in 1948, necessitating that this note is a study of post-World War II presidential elections.⁴

Fifth, by arithmetic, the vote share must be between zero and one, a problem for the linear estimates in this literature and especially problematic for examining shockingly large changes. We, instead, opt for a logistic formulation to obey the constraint of calculating shares. The specific form explains the Electoral College vote share at time t ($share_t$) with the recent growth of a macro aggregate (Δy_t) as:

$$share_t = \frac{1}{1 + \exp(a_1 + a_2 \Delta y_t)}$$

where a_1 and a_2 are coefficients to be estimated. Note that the macro variable appears in the denominator of the vote-share equation, implying that the coefficient a_2 should be negative if good economic performance improves the incumbent’s election prospects.

This relationship was estimated using maximum likelihood techniques for the quadrennial Electoral College results from 1948 to 2016, making for 18 observations, with the results reported in the table below. The three columns correspond to the three measures of activity, all of which are significantly statistically related to vote share. The predictive power varies—in descending order from employment to disposable income to GDP—and all three relationships are not likely the result of chance.

Explaining the Incumbent Party Share in the Electoral Congress

Quadrennially, 1948 to 2016

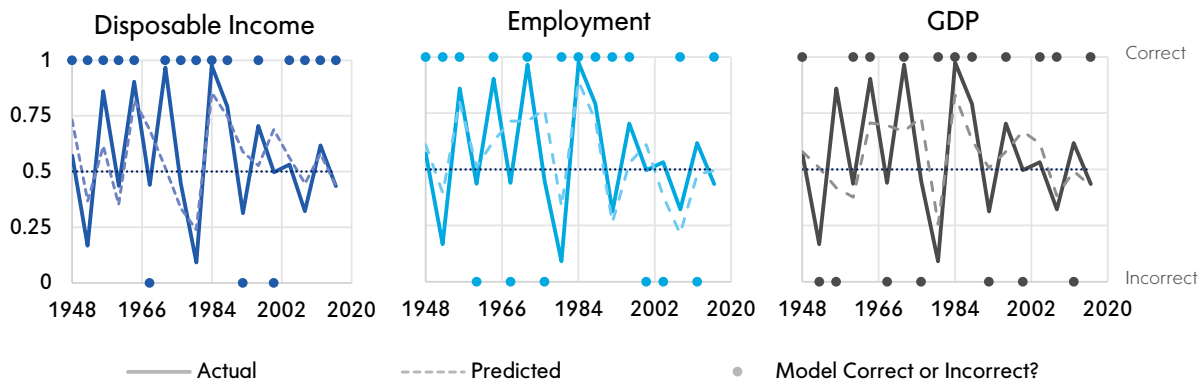
		Real Disposable Income	Employment	Real GDP
Constant	Coefficient	0.722	1.233	0.504
	Standard Error	0.360	0.458	0.365
	T-Statistic	2.008	2.691	1.381
Activity	Coefficient	-0.360	-0.673	-0.295
	Standard Error	0.119	0.199	0.121
	T-Statistic	-3.029	-3.377	-2.441
Goodness of Fit	R²	0.476	0.529	0.347
	SSR	0.618	0.555	0.770
	Log Likelihood	4.801	5.773	2.825

Using four-quarter change in activity ending in the second quarter of election year. The number of observations and degrees of freedom are 18 and 16, respectively. Note: Disposable income and GDP are in per capita terms. Real disposable income equals nominal disposable income divided by the deflator for personal consumption expenditure. Sources: Bureau of Economic Analysis (disposable income and GDP) and Labor Statistics (employment), and Wikipedia (vote share).

Given that these are basically least-squares estimates, the coefficients of all three recover the property that, if economic momentum is at its sample mean, the incumbent has an unconditional edge in winning of 57 to 43 percent. More telling, we can translate that into the hurdle growth rates just sufficient to manage a tie—a probability of 50 percent. From the estimation equation, this occurs when $\Delta y = -\frac{\beta_1}{\beta_2}$, or at the growth rates of 2.0, 1.8, and 1.7 percent, respectively, for disposable income, employment, and real GDP. Relative to their period averages, these imply that the incumbent party has a cushion to lose of 0.8, 0.4, and 0.9 percentage points of the growth rates of disposable income, employment, and GDP, respectively, before jeopardizing the election.

The obvious way to assess the predictive performance of the three specifications is to consider them in-sample, as in the three panels below. The solid line in each panel is the actual Electoral College share, with the horizontal line at 0.5, a tie, dividing the space into two half planes of victory and loss for the incumbent. The incumbent party wins when the solid line is above the dotted line and loses otherwise. The model predictions, dashed lines, are correct when they are in the same half-plane as the solid line at the same time. The dots at the top and bottom of the panels do this arithmetic of correct and incorrect calls. Of interest, there are only two elections in which all three models failed. In 1968, social issues came to the fore, and in 2000, the mapping of the popular vote to the Electoral Congress results was obscure.

Actual and Predicted Electoral College Vote Share for Incumbent Party Presidential Candidate Using Different Aggregate Economic Outcomes
1948-2016



Note: The explanatory variables are the four-quarter change ending in the second quarter of the election year. Disposable income and GDP are in per capita terms. Real disposable income equals nominal disposable income divided by the deflator for personal consumption expenditure. Sources: Author's estimates and data from Bureaus of Economic Analysis (disposable income and GDP) and Labor Statistics (employment) and Wikipedia (vote share).

Connecting the dots, the model using disposable income produced 15 out of 18 correct predictions. The same counting exercise produces 12 and 11 correct calls, respectively, for the models using employment and GDP. Recognize that this is in-sample information, and a small sample at that. Still, to check robustness, we split the sample chronologically in thirds and re-estimated the models three times, systematically omitting one third of the sample. This left us with 12 usable observations to estimate coefficients to predict all 18 elections three times. The results (not shown) across the 54 pseudo-elections are that the model using disposable income, employment, and GDP, respectively, calls 81 percent, 65 percent, and 67 percent of the elections correctly.

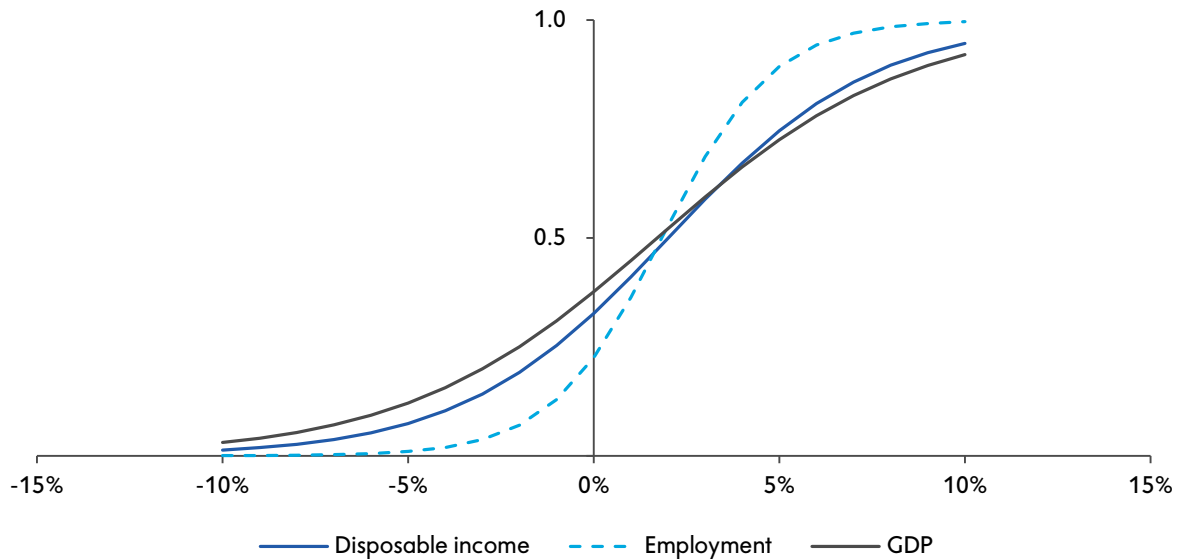
A Real-Time Stress Test

The statistically and economically significant coefficients on the macroeconomic indicators imply that the 20-percentage-point difference in the measurement of economic growth is consequential for predicting vote shares. The logistic specification shapes those effects in a nonlinear fashion. The chart on the next page provides the estimated sensitivity of incumbent-party electoral success as economic growth varies from -10 percent to 10 percent, the span of the performance of GDP and disposable income. Moving from the far left to the far right slams the probability across its entire possible range.

This is the channel spreading out the out-of-sample forecasts of these models given the disparate behavior of the explanatory variables. Based on our analysis, the probability that the incumbent will be reelected is 96 percent for using disposable income, nil using employment, and 3 percent using GDP.⁵ Herein is the test to come that should inform us as to the appropriate explanatory variable and indirectly shed light on household behavior, the subject of the conclusion.

Estimated Sensitivity of Incumbent Party Electoral Success on Economic Activity

1948 to 2016, Probability



Four-quarter change in activity ending in second quarter to election year, percent. Sources: Author’s estimates in text.

Conclusion

Economic data are inherently noisy. One observation does not establish an empirical regularity. But one additional observation can stress test an established regularity if drawn from a sparse part of the distribution. By way of example, empirical models of US presidential outcomes rely on a measure of the momentum of the economy in advance of the election. Real GDP, employment and real disposable income all perform about as equally well in describing that momentum from 1948 to 2016, so that the choice among them is more a matter of researcher’s preference than sharp distinction.

One researcher with a persuasive preference, Edward Tufte, argued:

“The government of a modern democratic country exerts very substantial control over the pace of national economic life and the distribution of economic benefits. While it cannot always dilute the consequences of exogenous shocks, reduce unemployment or inflation below certain levels, or protect its citizens from the vicissitudes of world markets, the government’s control over spending, taxes, transfers, money stock, and the like enables it to direct the short-run course of the economy to a significant degree.” (Tufte, 1978, p. 3.)

The COVID-19 pandemic is an exogenous shock of epic proportions. True to Tufte's assertion, "the government's control over spending, taxes, transfers, money stock, and the like" has significantly altered the path of the net income households receive relative to what the economy produces. That is the wedge among the traditional alternative determinants of vote shares. The issue to be tested in the general election is whether households look through those transfers (lending success to predictions based on GDP or employment), or not (favoring using disposable income).

This speaks to both the time horizon and rationality of household decision-making, essentially relitigating the debate between Kramer (1971) and Stigler (1973) and opening a window on whether households are hand-to-mouth consumers or Ricardian precautionary savers in the spirit of Barro (as reviewed in Barro, 1989). The result will only whisper on the issue against loud background noise, because the incumbent party resorting to Tufte-like political control of the economy and its opposition have distinctly different views about taxation and the government's role in the economy over the longer run. This is particularly relevant because the coronavirus pandemic palpably demonstrates that rare disaster risk is less rare than previously believed, as in Barro and Ursúa (2012), and might incline rational voters to base their decisions on the larger picture of policy design rather than satisfice on the basis or recent data points. If every there were a coordinating device to change rule-of-thumb decision-making, the pandemic is it.

Sampling so far out in the tail of the joint distribution of macroeconomic should speak to other mechanisms, as well. For instance, if the Federal Reserve's balance sheet matters, a near doubling of its assets to \$7 trillion in a few months should be evident somewhere in the data.

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Vincent is Mellon's Chief Economist and Macro Strategist. In this role, he is responsible for developing views on the global economy and making relative value recommendations across global bond markets, currencies and sectors.

Previously, Vincent served as the Chief US Economist and a managing director at Morgan Stanley. For the prior four years, he was a resident scholar at the American Enterprise Institute (AEI). Vincent also worked in several roles at the Federal Reserve over 24 years, including Director of the Division of Monetary Affairs and Secretary and Economist of the Federal Open Market Committee (FOMC). His responsibilities at the Federal Reserve included directing research and analysis of monetary policy strategies and the conduct of policy through open market operations, discount window lending and reserve requirements. Prior to these roles, he was the principal liaison with the domestic desk at the Federal Reserve Bank of New York and was responsible for preparing a document outlining policy alternatives for each FOMC meeting. He was Deputy Director in the Division of International Finance and Associate Economist of the FOMC and spent five years at the Federal Reserve Bank of New York in both the domestic and international research departments.

His academic publications primarily concern the conduct of policy and issues related to the monetary transmission mechanism as well as an analysis of alternative auction techniques and Treasury debt management. After an undergraduate training at Fordham University, he received graduate degrees in economics at Columbia University.

Endnotes

¹A brief review of the interaction of disease and mitigation and contraction followed by rebound is provided in Reinhart and Reinhart (2020).

²The International Monetary Fund keeps a running tally of policy initiatives around the world in its “Policy Responses to COVID-19,” found here: <https://www.imf.org/en/Topics/imf-and-covid19/Policy-Responses-to-COVID-19>.

³Fair (1978) tests the length of the backward-looking window and finds it to be short.

⁴To be more precise, we divide the available nominal disposable income per capita by the personal consumption expenditure implicit price deflator to derive our real series.

⁵Fair (1996) relates that part of the interest in election forecasting was to provide a simple example for teaching statistics that would elicit interest among students and involve a small data set. Linear versions of the three models basically produce the same result, except, in another teachable moment, the changes in the right-hand-side variables are large enough to violate the [0,1] bounds on vote share.

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Disclosure

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