# Presidents and the U.S. Economy: An Econometric Exploration

Alan S. Blinder and Mark W. Watson
Woodrow Wilson School and Department of Economics
Princeton University

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ABSTRACT

The U.S. economy has performed better when the President of the United States is a Democrat rather than a Republican, almost regardless of how one measures performance. For many measures, including real GDP growth (on which we focus), the performance gap is large and significant. This paper asks why. The answer is not found in technical time series matters nor in systematically more expansionary monetary or fiscal policy under Democrats. Rather, it appears that the Democratic edge stems mainly from more benign oil shocks, superior TFP performance, and perhaps greater defense spending and faster growth abroad.

Alan S. Blinder
Princeton University
blinder (at) princeton (dot) edu

Mark W. Watson
Princeton University
mwatson (at) princeton (dot) edu

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An extensive and well-known body of scholarly research documents and explores the fact that macroeconomic performance is a strong predictor of U.S. presidential election outcomes. Scores of papers find that better performance boosts the vote of the incumbent's party.[1] In stark contrast, economists have paid scant attention to predictive power running in the opposite direction: from election outcomes to subsequent macroeconomic performance. The answer, while hardly a secret, is not nearly as widely known as it should be.[2] The U.S. economy performs much better when a Democrat is president than when a Republican is.

Section 1 documents this fact, which is not at all "stylized." The superiority of economic performance under Democrats rather than Republicans is nearly ubiquitous; it holds almost regardless of how you define success. By many measures, the performance gap is startlingly large--so large, in fact, that it strains credulity, given how little influence over the economy most economists (or the Constitution, for that matter) assign to the President of the United States.

Most of the paper is devoted to econometric investigations of possible explanations of the Democrat-Republican performance gap in annualized real GDP growth—which we find to be 1.8 percentage points in postwar data covering 16 complete presidential terms—from Truman through Obama.[3] In discussing this large gap with economists, we frequently encountered the objection that the partisan difference must be statistically insignificant owing to the paucity of presidential administrations. That is not true, as we show in Section 1.

In Section 2, we ask whether the partisan gap is spurious in the sense that it is really either the makeup of Congress or something else about presidents (other than their party affiliations) that matter for growth. The answers are no. Section 3 investigates whether trends (Democrats were president more often when trend growth was high) or inherited initial conditions (Democrats were elected more often when the economy was poised for growth) can explain what appears to be a partisan gap. They cannot.

After a quick discussion of methodology in Section 4, Sections 5 and 6 are the heart of the paper. There we examine possible economic mechanisms that might explain the partisan growth

[1] The literature is large in economics and voluminous in political science. Ray Fair's (1978, 2011) work may be the best known to economists.

[2] See, for example, Alesina and Sachs (1988), Bartels (2008, Chapter 2), Comiskey and Marsh (2012), or Dietrich and Goldfarb (2012). An important precursor is Hibbs (1977). Earlier evidence on the unemployment rate and other cyclical indicators motivated some of the economic literature on political business cycles; see, for example, Alesina and Roubini (1997), and Faust and Irons (1999).

[3] This gap drops to 1.55 percentage points if we extend the data back into (part of) Truman's first term and forward into (part of) Obama's second term.

gap, distinguishing, to the extent possible, between factors that might or might not be attributable to superior economic policy. (Often, the line is fuzzy.) We find that government spending associated with the Korean War (which began under a Democrat and ended under a Republican) explains part of the 1.8 percentage point partisan gap, but that the gap remains large (1.4 points) even after excluding the Korean War administrations. We find that oil shocks, productivity shocks and, depending in the sample, defense spending, foreign economic growth, or a measure of consumer expectations jointly explain as much as 70% of the partisan gap. Some, maybe all, of these might be considered blends of good policy and good luck. But our empirical analysis does not attribute *any* of the partisan growth gap to fiscal or monetary policy.

Finally, Section 7 provides a brief summary of what we (think we've) learned.

## 1. The stark facts

### 1.1 Gross domestic product growth and recessions

For most of this paper, the data begin at the start of Harry Truman's elected term and extend through the end of Barack Obama's first term. This sample contains seven complete Democratic terms (Truman-2, Kennedy-Johnson, Johnson, Carter, Clinton-1, Clinton-2, and Obama-1) and nine complete Republican terms (Eisenhower-1, Eisenhower-2, Nixon, Nixon-Ford, Reagan-1, Reagan-2 , Bush I, Bush II-1, and Bush II-2), where the suffixes denote terms for two-term presidents. Sometimes different samples are used for specific purposes--as will be noted.

During the 64 years that make up the core 16 terms, real GDP growth averaged 3.33% at an annual rate. But the average growth rates under Democratic and Republican presidents were starkly different: 4.33% and 2.54% respectively. This 1.79 percentage point gap (henceforth, the "D-R gap") is astoundingly large relative to the sample mean.[4,] It implies that over a typical four-year presidency the U.S. economy grew by 18.5% when the president was a Democrat, but only by 10.6% when he was a Republican. And since the standard deviations of quarterly growth rates are roughly equal (3.8% for Democrats, 3.9% for Republicans, annualized), Democratic presidents have presided over growth that was faster but not more volatile.

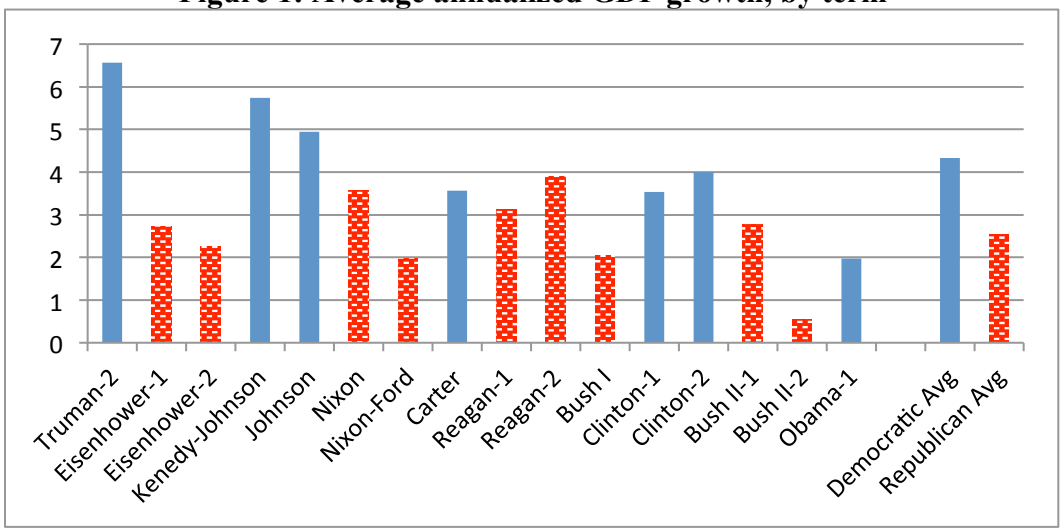
The estimated D-R growth gap is sensitive to the presumed lag between a presidential election and any possible effects of the newly-elected president on the economy. In our main

[4] Because of differences in skewness, the *median* difference in growth rates is about half as large. See Figure A.1 and Table A.1 in the appendix. (All appendices can be downloaded from http://www.princeton.edu/~mwatson.)

results, the first quarter of each president's term is attributed to the previous president. While we focused on this one-quarter lag on *a priori* grounds, we repeated the calculation with lags of four, three, two, zero, and *leads* of one through four quarters. Results were similar, although these alternative lags all lead to smaller estimated D-R gaps.[5]

Figure 1 displays the story graphically by showing average growth rates over the 16 presidential terms. While there is substantial variation in growth rates (from over 6 percent for Truman-2 to under 1 percent for Bush II-2), the D-R gap is apparent. It is clear at a glance that GDP growth rises when Democrats get elected and falls when Republicans do. There are no exceptions.

**Figure 1: Average annualized GDP growth, by term**




Closer inspection of quarterly data reveals that the five highest growth rates in the sample all came under Democratic presidents, while four of the five lowest came under Republicans. But the D-R gap is not the result of a handful of outliers. For example, dropping the four largest and four smallest quarterly growth rates for both Democrats and Republicans reduces the D-R gap only to 1.59 percentage points. If we rank-order the growth performances of all 16 full terms in the sample, six of the eight above-average presidential terms, including the top four, were Democratic; seven of the eight below-average terms were Republican. (See the online Appendix Table A.3.)

[5] See Appendix Table A.2. Political scientists seem to prefer lags of one year *or more*. (See Bartels (2008), Comiskey and Marsh (2012).) Such lags struck us as too long on *a priori* grounds. Furthermore, as will be shown later, much of the partisan growth gap comes in the first year of each presidency. So a four, five, or six quarter lag would mask most of it.

Eyeballing Figure 1 gives the (correct) impression that a sizable share of the overall D-R gap comes from the Truman and Kennedy-Johnson years. Indeed, the gap grows smaller as the sample rolls forward in time. If we estimate the gap using data ending right after Eisenhower's presidency, it is a whopping 4.07 percentage points ($t$-ratio = 2.5 using Newey-West standard errors described below). If we end the subsample after the Nixon-Ford administrations, the estimated gap is 3.12 percentage points ($t$ = 3.4). Ending after the Bush I administration yields an estimate of 2.41 percentage points ($t$ = 2.9). Finally, if we consider a subsample extending from Truman through Bush II, the D-R gap is 2.18 percentage points ($t$ = 3.3). But even at 1.79 percentage points ($t$ = 2.8) in the full 16-term sample, it remains large and significant.

NBER recession dating gives an even more lopsided view of the D-R difference. Over the 256 quarters in these 16 terms, Republicans occupied the White House for 144 quarters, Democrats for 112. But of the 49 quarters classified by the NBER as in recession, only eight came under Democrats versus 41 under Republicans.[6] Thus, the U.S. economy was in recession for 1.1 quarters on average during Democratic terms, but for 4.6 quarters on average during Republican terms.

These results for GDP and quarters-in-recession are summarized in Table 1. The table shows the Democratic and Republicans averages, the D-R gap (labeled "Difference"), and both standard errors and $p$-values to gauge statistical significance. Standard errors are computed in two ways. The first, shown in parentheses (), clusters observations by presidential terms, which allows arbitrary correlation within a term but no correlation between terms. The second, shown in square brackets [], uses a standard HAC formula, which allows conditional heteroskedasticity and (limited) correlation within and between terms. In both cases, statistical significance for the D-R difference can be assessed by using the usual $t$-statistic.[7] For the D-R gap in GDP growth, the two standard errors are very close; each yields a $t$-statistic near 2.7. For quarters-in-recession, the two standard errors differ a bit; but both yield $t$-statistics with absolute values above 3. Thus, the $t$-statistics imply a statistically significant D-R gap in economic performance despite the small number of observations.

[6] As before, the first quarter of each presidency is "charged" to the previous president. Thus, for example, the recession quarter 2001:1 is charged to Bill Clinton and 2009:1 is charged to George W. Bush.

[7] The effective sample size for the $t$-statistic constructed with clustered standard errors is the number of administrations ($n_{Dem}$ = 7 and $n_{Rep}$ = 9). Conservative inference can be carried out using the critical value from the Student's – $t$ distribution with $\min[(n_{Dem}-1),(n_{Rep}-1)] = 6$ degrees of freedom. (The 5% two-sided critical value from the $t_6$ distribution is 2.5.) Ibragimov and Müller (2010, 2015) show that this procedure remains conservative under heteroskedacity.

**Table 1: Average values by party of president**

| Variable | Democratic | Republican | Difference | *p*-value |
|---|---|---|---|---|
| GDP (Growth Rate) | 4.33 (0.58) [0.46] | 2.54 (0.33) [0.45] | 1.79 (0.67) [0.64] | 0.01 |
| Quarters-in-Recession | 1.14 (0.51) [0.56] | 4.56 (0.78) [1.03] | -3.41 (0.93) [1.13] | 0.01 |

Notes: The numbers in parentheses are standard errors computed by clustering observations by term; the numbers in brackets are Newey-West standard errors computed using 6 lags. The *p*-value in the last column is for a nonparametric test of the null hypothesis of no difference between the parties.

We also assessed statistical significance by using a non-parametric test that involves randomly assigning a party label (D or R) to each of the sixteen 16-quarter blocks of data in the sample. Specifically, we assigned nine Republican and seven Democratic labels randomly to each four-year period (e.g., 1949:Q2-1953Q1, 1953:Q2-1957:Q1, etc.) and then computed the difference in average growth rates under these randomly-assigned "Democratic" and "Republican" terms. Doing so enables us to construct the distribution of differences in average growth rates under the null hypothesis that political party and economic growth are independent (because party labels are randomly assigned to each term). This distribution can then be used to compute the *p*-value of the difference in the *actual* growth rates under the null. As shown in the final column of Table 1, this *p*-value is 0.01 for GDP, which corresponds to the probability of observing an absolute difference of 1.79% (the actual value) or larger under random assignment of party.[8] The *p*-value for quarters-in-recession is also 0.01; so the lopsided realization of recessions is similarly unlikely under the assumption that party and economic performance are independent.

**1.2 Other indicators**

The finding of Democratic superiority is not peculiar to the time series on real GDP growth and NBER recession dates. Table 2 summarizes results for a wide variety of other indicators of economic performance.

Panel A considers three alternative measures of aggregate output. The D-R gap for the growth rate of GDP *per capita*, which corrects for any differences in population growth, is essentially the same as for GDP itself (1.73% versus 1.79%). The D-R gap is somewhat larger in the nonfarm business sector (2.15%) and much larger for industrial production (3.78%). Each of these partisan growth gaps is statistically significant.

[8] There are 11,440 ways that the growth rates for the sixteen presidential terms can be assigned to nine Republicans and seven Democrats. Of these, only 146 resulted in a D-R gap greater in absolute value than the observed 1.79%, so the *p*-value under random assignment is 146/11440 = 0.013.

**Table 2: Average values by party of president**

| Variable | Democratic | Republican | Difference | *p*-value |
|---|---|---|---|---|
| **A. Other Output Measures** | | | | |
| GDP Per Capita (GR) | 3.09 (0.47) [0.42] | 1.35 (0.35) [0.45] | 1.73 (0.59) [0.61] | 0.01 |
| Nonfarm Business Output (GR) | 4.81 (0.56) [0.52] | 2.65 (0.43) [0.61] | 2.15 (0.71) [0.80] | 0.01 |
| Industrial Production (GR) | 5.57 (0.95) [0.84] | 1.79 (0.62) [0.93] | 3.78 (1.13) [1.24] | 0.00 |
| **B. Employment and Unemployment** | | | | |
| Employment (Payroll) (GR) | 2.59 (0.41) [0.36] | 1.17 (0.32) [0.38] | 1.42 (0.52) [0.49] | 0.02 |
| Employee Hours (NFB) (GR) | 2.22 (0.31) [0.39] | 0.57 (0.38) [0.50] | 1.65 (0.49) [0.58] | 0.01 |
| Employment (HH) (GR) | 1.76 (0.28) [0.25] | 1.20 (0.26) [0.31] | 0.56 (0.38) [0.37] | 0.17 |
| Unemployment Rate (Level, PP) | 5.64 (0.67) [0.41] | 6.01 (0.41) [0.29] | -0.38 (0.78) [0.47] | 0.62 |
| Unemployment Rate (Change, PP) | -0.83 (0.42) | 1.09 (0.45) | -1.92 (0.62) | 0.01 |
| **C. Stock Returns and Corporate Profits** | | | | |
| Returns SP500 Index (PP) | 8.35 (2.12) [2.56] | 2.70 (2.84) [3.20] | 5.65 (3.55) [4.22] | 0.15 |
| Corporate Profits (Share of GDI) | 5.61 (0.31) [0.22] | 4.74 (0.20) [0.16] | 0.87 (0.37) [0.27] | 0.03 |
| **D. Real Wages and Productivity** | | | | |
| Compensation/Hour (GR) | 1.78 (0.55) [0.36] | 1.43 (0.34) [0.27] | 0.35 (0.65) [0.44] | 0.57 |
| Ouput/Hour NFB (GR) | 2.53 (0.46) [0.38] | 2.06 (0.29) [0.29] | 0.47 (0.54) [0.49] | 0.37 |
| TFP (GR) | 1.89 (0.47) [0.37] | 0.84 (0.30) [0.35] | 1.05 (0.55) [0.52] | 0.07 |
| **E. Structural Government Surplus** | | | | |
| Surplus/Pot.GDP (PP) | -2.09 (0.87) [0.51] | -2.78 (0.22) [0.26] | 0.69 (0.89) [0.54] | 0.30 |
| **F. Inflation** | | | | |
| Inflation PCED (Level, PP) | 2.97 (0.95) [0.59] | 3.32 (0.63) [0.41] | -0.35 (1.14) [0.68] | 0.73 |
| Inflation GDPD (Level, PP) | 2.89 (0.88) [0.55] | 3.44 (0.60) [0.39] | -0.55 (1.06) [0.63] | 0.59 |
| Inflation PCED (Change, PP) | 1.06 (0.67) | -0.83 (0.87) | 1.89 (1.10) | 0.12 |
| Inflation GDPD (Change, PP) | 0.93 (0.69) | -0.81 (0.85) | 1.74 (1.09) | 0.15 |
| **G. Interest Rates** | | | | |
| 3 Month T-bill Rate (Level, PP) | 4.01 (1.10) [0.66] | 4.87 (0.92) [0.58] | -0.86 (1.44) [0.82] | 0.56 |
| Federal Funds Rate (Level, PP) | 4.75 (1.36) [0.82] | 5.55 (1.10) [0.69] | -0.79 (1.75) [0.99] | 0.54 |
| 3 Month T-bill Rate (Change, PP) | 1.75 (0.91) | -1.47 (0.59) | 3.22 (1.09) | 0.00 |
| Federal Funds Rate (Change, PP) | 2.34 (1.37 ) | -2.09 (0.72) | 4.42 (1.55) | 0.00 |
| 10 Year – 3 Month Term Spread (PP) | 1.17 (0.37) [0.25] | 1.65 (0.22) [0.20] | -0.48 (0.43) [0.30] | 0.25 |
| Baa – Aaa Spread (PP) | 0.80 (0.11) [0.07] | 1.08 (0.11) [0.08] | -0.29 (0.15) [0.10] | 0.09 |

Notes: The units for each variable are given in parentheses in the first column: GR denotes growth rate in percentage points at an annual rate; PP denotes percentage points; Change denotes average value in last year of term minus average value in last year of previous term. The sample period begins with Kennedy-Johnson for the structural government surplus, with Eisenhower-2 for the federal funds rate, and in 1954:Q2 for the term spread. For all other series, the sample spans Truman-2 through Obama-1. See Notes to Table 1.

Panel B considers employment and unemployment. The D-R gap in the annual growth rate of payroll employment is 1.42 percentage points, the gap in employee hours in nonfarm businesses is somewhat larger (1.65 points), and both are statistically significant. Somewhat puzzling, given these results, the partisan gap for employment is much smaller in the household survey—just 0.56 percentage point—and not statistically significant at conventional levels.[9] The average unemployment rate is lower under Democrats (5.6% vs. 6.0%), but that difference is also

[9] Examination of the payroll and household employment series shows two sustained episodes in which employment growth in the establishment survey exceeded employment growth in the household survey substantially and persistently; one was late in the Truman administration, the other was in the Kennedy-Johnson boom.

small and not statistically significant. There is, however, a very large and statistically significant difference in the *change* in the unemployment rate, computed as the average unemployment rate in the final year of the term minus the average value in the final year of the previous term. During Democratic presidential terms, the unemployment rate *fell* by 0.8 percentage points, on average, while it *rose* by 1.1 percentage points, on average, during Republican terms--yielding a large D-R gap of -1.9 percentage points.

Delving into the sectoral details (found in Appendix Table A.4), reveals that the growth rates of every major component of real GDP except exports and government *nondefense* purchases were higher under Democratic rather than Republican presidents, although the margins are small and statistically insignificant in a number of cases. That table shows that much of the Democratic growth advantage comes from higher spending on consumer durables and private investment, especially nonresidential fixed investment, where the partisan gap is 4.8 percentage points. Another large growth gap (5.1 percentage points) shows up in federal defense spending. But because defense spending is so volatile, even that large a difference is not statistically significant. We return to defense spending later.

Partisan differences extend well beyond the standard indicators of real growth and employment. For example, Panel C of Table 2 shows that annualized stock market returns for firms in the S&P 500 are 5.65 percentage points higher when a Democrat occupies the White House than when a Republican does.[10] But given the extreme volatility of stock prices, even differences that large are statistically significant at only the 15% level. The corporate profit share of gross domestic income was also higher under Democrats: by 5.6% versus 4.7% (*p*-value=0.03). Though business votes Republican, it prospers more under Democrats.

Panel D shows that both real wages (compensation per hour in the nonfarm business sector) and labor productivity increased slightly faster under Democrats than Republicans, although neither D-R gap is statistically significant. Growth in total factor productivity was much faster under Democrats (1.89% versus 0.84% for Republicans, with a *p*-value of 0.07). Both labor productivity and TFP are highly cyclical, however, and cyclical adjustment can be complicated. We discuss these matters extensively later.

[10] The partisan gap in stock market returns seems to have attracted a lot more attention—at least from economists—than the partisan gap in GDP growth. See, for example, Santa-Clara and Valkanov (2003) and other references cited there. For much earlier evidence, see Allvine and O'Neill (1980).

Moving further afield, and now using new Congressional Budget Office data which are available only since the Kennedy-Johnson term, the structural federal budget deficit has been, on average, smaller under Democratic presidents (2.1% of potential GDP) than under Republican presidents (2.8% of potential GDP), although the difference is far from statistically significant. (See Panel E.) And Bartels (2008) (not shown in the table) has documented that income inequality rises under Republicans but falls under Democrats.

The only notable exception to the rule that Democrats outperform Republicans seems to be inflation, where the economy fares about equally well under presidents of either party. For example, Panel F of Table 2 shows that while the average inflation rate was slightly lower under Democratic presidents (2.97% versus 3.32% using the PCE deflator; 2.89% versus 3.44% using the GDP deflator), neither difference comes close to statistical significance. Inflation does, however, show a tendency to *rise* under Democrats and *fall* under Republicans. For example, using the PCE deflator, inflation rises on average by 1.06 percentage points during a Democratic presidency, falls by 0.83 percentage point during a Republican presidency. The difference of 1.89 percentage points is statistically significant, albeit only at the 12% level.

Of course, weaker GDP growth and lower employment growth under Republicans could be responsible for the differential inflation performance. A simple back-of-the-envelope calculation suggests that it is. With unemployment averaging 0.4 percentage point less under Democrats, traditional estimates of the Phillips curve (e.g., Staiger, Stock, and Watson (2001)) suggest that the *change* in inflation should be roughly 0.1 percentage points more *per quarter*, or about 1.6 percentage points over a four-year presidential term—which is close to what we find.

Given the findings on inflation, it is perhaps not surprising to find (in Panel G) that short-term nominal interest rates are a bit lower under Democratic presidents (though not significantly so) but that they tend to rise under Democrats and fall under Republicans. This last difference is very large (3.22 and 4.42 percentage points) and highly significant. Our chosen measures of the (Treasury) term spread and the (corporate-bond) risk spread are both higher under Republican presidents, but only the latter difference is significant at the 10% level.We will return to interest rates and spreads in Section 5.

**1.3 The D-R gap over a longer historical period**

Official quarterly GDP data begin only in 1947, but both the nation and the economy date back much further. What happens if we extend the data back in time? We know that the

Democratic-Republican gap would widen notably if we included the long presidency of Franklin D. Roosevelt, for real GDP growth from 1933 to 1946 averaged a heady 7.4% per annum. Going back to Hoover would also boost the measured D-R gap. But what about earlier U.S. history?

Owang, Ramey, and Zubairy (2013), building on previous work by Balke and Gordon (1989), have constructed a quarterly real GDP series that dates all the way back to 1875. For the 72-year period spanning 1875:Q1 through 1947:Q1, the average GDP growth rates in their data are 5.15% when Democrats sat in the White House (119 quarters) and 3.91% when Republicans did (169 quarters).[11] That D-R growth gap of 1.24 percentage points is smaller than the postwar gap, and because the pre-WWII GDP data are so volatile (the standard deviation of the quarterly growth rate is 12.4%), that gap is not statistically significant (*t*-stat = 0.60).

The data on recessions are a little clearer. The NBER says the U.S. economy was in recession in 133 of those 288 historical quarters (46% of the time). But 94 of those recessionary quarters came under Republican presidents (56% of the time) versus only 39 under Democratic presidents (33% of the time). This difference *is* statistically significant (*t*-stat = 2.3). Thus our main facts appear to be far from new. The Democratic growth edge over the 1875-1947 period is, however, entirely due to the economy's excellent performance under Franklin D. Roosevelt. Excluding the FDR years, growth was actually higher under Republicans. So one might say that Democratic growth superiority began with Hoover.

## 2. But might it actually be...?

Having established the basic fact that the U.S. economy has performed better under Democratic than Republican presidents, we ask in this short section whether the president's party affiliation might actually be standing in for something else. For example, might the key difference really be some presidential trait other than his party affiliation? Or might the partisan makeup of Congress actually be the key ingredient? The answers, as we will see next, are no.

### 2.1 Other presidential traits

The four top presidential terms, ranked by GDP growth, are all Democratic: Truman's elected term, Kennedy-Johnson, Johnson's elected term, and Clinton's second term. Those four comprise the foundation of the overall D-R growth gap. But might there be some other

[11] Until Eisenhower, presidents were inaugurated on March 4 instead of January 20. So, for the historical data, we attributed the first *two* quarters of the calendar year to the previous president.

characteristic, shared by those presidents, that explains the differential growth performance better? For example, maybe presidents who were once members of Congress--a group that includes Truman, Kennedy, and Johnson--do better. (They do.)

Table 3 displays average GDP growth rates for presidents categorized by their political party (our focus) and by prior experience as either a member of Congress or as a governor. The first row repeats our central fact. The next row contrasts growth under the seven presidents with congressional experience (3.83 percentage points) with the nine without (2.93 percentage points). The difference is sizable (0.9 percentage point), but not statistically significant. The next row compares the administrations of former governors to non-governors. Growth was marginally lower under former governors, but the difference falls far short of statistical significance.[12]

**Table 3: Average GDP growth by presidential attribute**

| Attribute | Terms | With | Without | Difference | *p-value* |
|---|---|---|---|---|---|
| Democrat | **7** | 4.33 (0.58) [0.46] | 2.54 (0.33) [0.45] | 1.79 (0.67) [0.64] | 0.01 |
| Experience in Congress | 7 | 3.83 (0.73) [0.56] | 2.93 (0.35) [0.42] | 0.90 (0.81) [0.71] | 0.26 |
| Former governor | 7 | 3.06 (0.45) [0.47] | 3.53 (0.59) [0.47] | -0.48 (0.74) [0.65] | 0.55 |

Notes: Standard errors shown in parentheses and brackets and *p*-value shown in the final column are computed as in Table 1. Most of the underlying data on attributes come from King and Ragsdale (1988), updated by the authors.

### 2.2 Was it really Congress?

We mentioned the Constitution earlier because it assigns the power of the purse—and most other domestic powers as well—to Congress, not to the president. Could the key partisan difference really be which party controls *Congress* rather than which party controls the *White House*? The answer is no.

The rightmost column of Table 4 displays average GDP growth rates when the Democratic Party controlled both houses of Congress, when control of the two houses was split (regardless of which party controlled which house), and when the Republican Party controlled both houses. Average growth was highest when Democrats controlled Congress (3.47%), but the difference with Republican control (3.35%) is trivial. The table shows a further breakdown of average GDP growth rates by president and by partisan control of Congress. Growth was highest when Democrats controlled both houses of Congress and the White House (4.69%) and next highest when a Democrat was president and Republicans controlled Congress (3.86%), although the difference between these two averages is not statistically significant. In contrast, average growth

[12] We also looked at whether younger or taller presidents have had better growth performances. They have, but the differences are not significant.

under Republican presidents was less than 3% regardless of which party controlled Congress. Table 4 speaks clearly: It has been the president, not Congress, that mattered.

**Table 4: Average GDP Growth under presidents and by Congressional control**

| Partisan control of Congress | Party of President | | | All |
|---|---|---|---|---|
| | Democrat | Republican | | |
| Democrats control both houses | 4.69 (0.59) [80] | 2.37 (0.56) [88] | | 3.47 (0.47) [168] |
| Divided Congress | 2.19 (0.23) [8] | 2.81 (1.07) [32] | | 2.68 (0.87) [40] |
| Republicans control both houses | 3.86 (0.43) [24] | 2.83 (0.84) [24] | | 3.35 (0.52) [48] |
| All | 4.33 (0.46) [112] | 2.54 (0.45) [144] | | 3.33 (0.34) [256] |

Notes: Entries are average growth rates in real GDP (in percentage points at an annual rate) by party of the President and partisan control of Congress. The numbers in parentheses are standard errors (Newey-West with 6 lags) and the numbers in brackets are the number of quarters.

## 3. Trends and initial conditions

We next ask whether the D-R gap could stem from different trend growth rates under Democratic and Republican administrations, or whether Democrats were more likely than Republicans to be elected when the economy was poised for a period of rapid growth (so that causality runs from growth to party rather than from party to growth).

### 3.1 Trends

Recall that Figure 1 showed that the three presidential terms with the fastest growth rates came early in the sample while three of the terms with the slowest growth (G.W. Bush's two terms and Obama) came late. Since trend increases in the labor force and productivity were higher in the early post-WWII years than they have been since, say, 2000, part of the difference in the average growth rates under Democrats and Republicans might be explained by the timing of these low-frequency movements.

This possibility is investigated in Appendix B, where we compute average growth rate differences after detrending the quarterly GDP growth rates using a variety of long two-sided weighted moving averages. The analysis there shows that low-frequency factors explain little, if any, of the D-R gap.

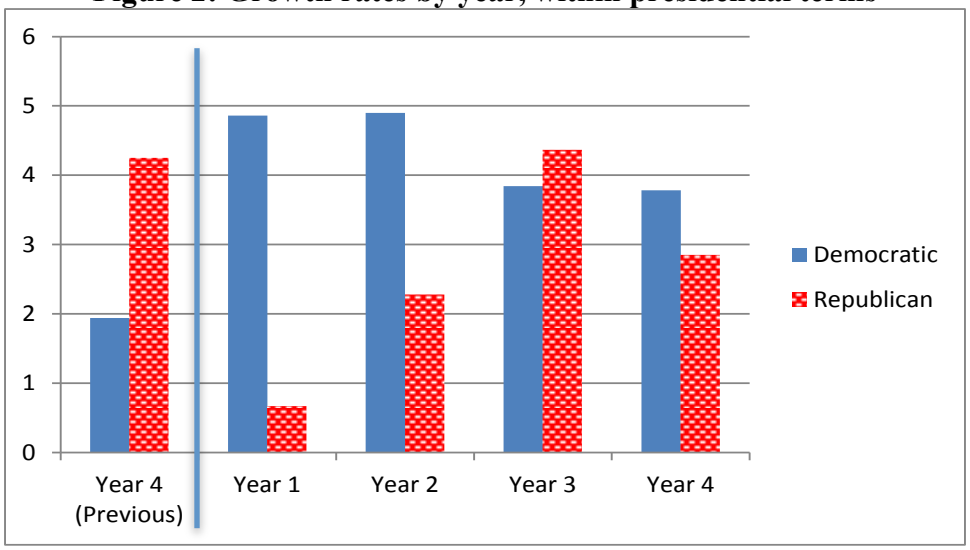
### 3.2 Initial conditions

A different question of timing is whether the Democratic advantage might be attributable to relatively favorable initial conditions. That is, are Democrats more likely to take office just as the economy is poised to take off, perhaps because of good Republican policies; and/or are Republicans more likely to take office when the economy is primed for recession, perhaps

because of poor Democratic policies? If so, the direction of causality runs from economic performance to party of the president rather than from party to performance.

Figure 2 provides a first piece of evidence on this question by showing when, within four-year presidential terms, the Democratic advantage is the largest and when it is the smallest. The figure makes it clear that the advantage comes in the first two years, and especially in the first, when the D-R growth gap exceeds 4 percentage points.[13,14] The figure also shows (on the far left) the average growth rate in the final year of the *previous* administration. Democrats inherit an average growth rate of 1.94% from the final year of the previous term, while Republicans inherit an average growth rate of 4.25%--a clear advantage to Republicans. Thus growth slows sharply and quickly when a Republican is elected, but accelerates on a dime following the election of a Democrat.

**Figure 2: Growth rates by year, within presidential terms**




Were these turnarounds anticipated? That is, were Democrats elected when future growth was *expected* to be strong and Republicans elected when recessions were imminent? Simple time series calculations suggest not. After all, GDP growth is *positively* serially correlated, so that high growth in year *t* is more likely to be followed by *high* growth in year *t*+1 than by low growth. Because Republicans inherit high growth, they should be more likely to experience high

[13] If we restrict the sample to presidential terms that represent a change in party (which reduces the sample size from 15 to 8), the difference is even larger.

[14] Appendix Table A.5, which shows average growth by year for the major spending components of GDP, shows that the large D-R gap in the first two years comes mainly from growth in spending for consumer durables and fixed investment.

growth early in their administrations than Democrats. But Figure 2 indicates just the opposite. Thus, the reverse-causality explanation for the D-R gap is inconsistent with the serial correlation in the data.

But perhaps the serial correlation calculation is too simplistic. Maybe factors unique to the transition years made high growth for new Democratic administrations and low growth for new Republican administrations forecastable. We investigate this question in several ways in Table 5, and the answer appears to be that little, if any, of the D-R gap was forecastable. Panel A shows median GDP growth forecasts from the Survey of Professional Forecasters (SPF). Because the SPF data begin only in 1968, the analysis starts with Nixon's first term. The data come from surveys conducted in the first quarter of each presidential term and pertain to forecasted growth over the coming four quarters. For example, the Carter results use the survey conducted in 1977:Q1 and show median growth forecasts for the four quarters from 1977:Q1 through 1978:Q1.[15] The table also shows actual realized values for growth in the line just below.

**Table 5: GDP growth rate forecasts**

| | Democratic | Republican | Difference |
|---|---|---|---|
| *A. SPF Forecasts: average growth rate in first year of term (Nixon – Obama-1)* | | | |
| Forecast | 3.1 | 3.2 | -0.1 |
| Actual | 3.5 | 1.0 | 2.5 |
| *B. Greenbook Forecasts: average growth in first year of term (Nixon/Ford – Obama-I)* | | | |
| Forecast | 3.2 | 2.8 | 0.4 |
| Actual | 3.5 | 1.1 | 2.4 |
| *C. Time Series Model Forecasts: average growth rate in first year of term (Nixon – Obama-1)* | | | |
| AR Forecast | 2.1 | 3.1 | -0.9 |
| VAR Forecast | 3.0 | 2.5 | 0.5 |
| AR-NL Forecast | 2.9 | 3.0 | -0.0 |
| Actual | 3.4 | 1.4 | 2.0 |
| *D. Time Series Model Forecasts: average growth rate in first year of term (Truman-2 – Obama-1)* | | | |
| AR Forecast | 2.9 | 3.5 | -0.6 |
| VAR Forecast | 3.2 | 3.2 | 0.0 |
| AR-NL Forecast | 3.4 | 3.2 | 0.2 |
| Actual | 4.7 | 0.6 | 4.1 |

Notes: Detailed results are presented in appendix Table A.6. Forecasts for the AR model are fitted values from regressions of $\ln(GDP_{t+4}/GDP_t)$ onto current and four lags of $\ln(GDP_t/GDP_{t-1})$; the VAR model additionally includes current and 4 lags of the Aaa-3MonthTbill spread. The AR-NL model augments the AR specification with current and 4 lags of an indicator variable for a recession at time $t$, $R_t$, and interactions of $R_t$ and $\ln(GDP_t/GDP_{t-1})$.

With real GDP subject to substantial revisions over time, one issue with using SPF forecasts is the vintage of data the forecasters were attempting to forecast. A standard practice is to

[15] Detailed results underlying Table 5 are provided in appendix Table A.6. That table also shows results using the SPF surveys conducted in the second quarter of each administration.

compare the forecasts to a vintage that includes only "near term" revisions, and we follow this practice by comparing these forecasts to "actuals" from real time datasets that were available two years after the forecast date. (So, for example, the "actual growth" of real output from 1977:Q1-1978:Q2 is measured using data available in 1979:Q2.)

Real output growth was forecast by the SPF to be essentially the same, on average, over the first years of presidential terms covered in the available sample period: 3.1% for Democrats versus 3.2% for Republicans. Actual growth rates, however, were 3.5% under Democrats versus only 1.0% under Republicans. Thus the huge partisan growth difference surprised forecasters.

Panel B of Table 5 shows analogous results using the Federal Reserve's Greenbook forecasts of growth, which are available only since the Nixon/Ford term. SPF and Greenbook forecasts generally match up well;[16] the one big exception was the first year of the Reagan presidency, when the SPF forecast was 3.0% but the Greenbook forecast was -0.1%. (Actual growth was far lower than both: -2.5%.) The D-R gap forecast by the Greenbook was 0.4 percentage points, while the actual gap was 2.4 percentage points.

The remaining panels of Table 5 show results from forecasts constructed from three pure time series models estimated over the full sample. These are not real-time forecasts because they use fully-revised data and estimate models over the full-sample period. But they do capture the average persistence in the data.

The time series model forecasts employ the same timing convention as in Panels A and B: forecasts are constructed based on data through the first quarter of each presidential term and pertain to growth over the subsequent four quarters. We consider three models: an AR(4) model for real GDP growth; a VAR(4) that includes GDP growth and a yield curve spread (long-term Aaa corporate bonds minus 3-month Treasury bills[17]); and a nonlinear AR model that allows for potential rapid growth ("bounceback") following recessions.[18] Panel C shows results for the time series models over the same sample period (Nixon through Obama-1) as the SPF forecasts. Panel D shows results for the entire sample period (Truman-2 through Obama-1).

The simple AR models forecast *lower* average GDP growth for Democrats than Republicans over both samples. This is just what you would expect from positive serial correlation in GDP

[16] Romer and Romer (2000) provide evidence that Greenbook forecasts of real output growth were more accurate than the SPF over the 1981-1991 sample period.
[17] We use the long-term corporate bond rate because it is available over the entire post-war sample period.
[18] The nonlinear specification augments the AR model with lags of a binary recession indicator, $R_t$, and interactions of $R_t$ and lags of GDP growth. See, for example, Kim and Nelson (1999) and Morley and Piger (2012).

growth and the lower average GDP growth inherited by Democrats; but it goes the wrong way for explaining the D-R gap. The forecasts from the VAR model and the non-linear AR model are mixed; two of the four indicate slightly higher expected growth under Democrats. For example, over the full sample, the nonlinear AR model forecasts average first-year growth of 3.4% for Democrats versus 3.2% for Republicans. But this difference is tiny compared to the actual 4.1 percentage point D-R gap in first-year average GDP growth over this sample.

In sum, data on forecasts resoundingly reject the hypothesis that Democrats inherited more favorable initial conditions (in terms of likely future growth) from Republicans than Republicans did from Democrats.

These findings on forecasts raise an interesting question: Could forecasters *in the past* have improved the accuracy of their GDP growth forecasts by adding an easily observable variable with significant predictive power: the party of the president. At least for AR forecasts, the surprising answer is: by only a trivial margin. The reason is that, while the D-R gap is large and reasonably precisely estimated using *all* the data, it would have been less precisely estimated in real time. Thus, surprisingly, sampling error would have eliminated most of the potential improvement in the accuracy of the forecasts.

**4. Explaining the partisan growth gap: Methods**

Having explored and disposed of a variety of mechanical explanations for why economic performance was so much better when Democrats occupied the White House, we now turn our attention to economic explanations. But first a word about econometric methodology.

In what follows, we consider a long list of potential explanatory variables, asking how much of the D-R gap can be explained by each. We measure each explanatory variable as a "shock," so they are (approximately) serially uncorrelated and (ideally) control for distinct sources of macroeconomic volatility. Where possible, we rely on shocks computed by others so as not to "stack the deck." Some examples (see below) are oil shocks from Hamilton (2003) or Killian (2008), defense spending shocks from Ramey (2011), and monetary policy shocks from Romer and Romer (2004) or Sims and Zha (2006).

But in some cases, we had to construct the shocks ourselves using vector autoregressions. Our procedure was straightforward. Call the variable of interest $x$. (Many concrete examples will be offered in the next section.) We constructed the "$x$ shock" as the residual from regressing $x$ on

a set of variables, $z$, and lagged values of $x$ and $z$. Thus the $x$ shock comes from a $(z,x)$-VAR with $x$ ordered last in a Wold causal ordering. Unless otherwise noted, $z$ included four variables--the GDP growth rate, inflation (measured by the GDP deflator), the 3-month Treasury bill rate, and commodity prices—and the lag length was six quarters.[19]

Call the $x$-shock time series so created $e_t$. We used distributed lag regressions to measure the effect of current and lagged $e_t$ on the D-R gap. Let $y_t$ denote the growth rate of real GDP, and consider the regression $y_t = \gamma(\mathrm{L})e_t$ + other factors. Average realizations of $\gamma(\mathrm{L})e_t$ during any specific historical sample might differ between Democratic and Republican presidents for two reasons. First, even if all the $\gamma$ coefficients are the same for each party, the value of $e_t$ varies through time. Second, the $\gamma$'s might differ by party because policy reactions differ or for a variety of other reasons. Either sort of difference could explain part of the D-R gap, and we allow for both.

As will be clear when we present the list of candidate shocks shortly, some of the $e$ variables look a lot like policy variables (example: government spending), others look far less policy-driven but might embody important elements of policy (example: interest rate spreads), while others look more "exogenous" (example: oil price shocks).[20] If we estimate the $\gamma$ coefficients allowing for $k$ different shocks, our basic regression is of the form:

$$y_t = \gamma_0 + \gamma_1(\mathrm{L})e_{1t} + \gamma_2(\mathrm{L})e_{2t} + \ldots + \gamma_k(\mathrm{L})e_{kt} + u_t \qquad (1)$$

where $u_t$ is a regression error. We estimate specifications in which all the distributed lag coefficients are allowed to differ between Democratic and Republican presidencies and in which only the intercept, $\gamma_0$, is allowed to differ (the slopes are constrained to be equal).

We present two sorts of estimates below. First, in Section 5, we offer estimates of equation (1) that use only one $e$ variable at a time, in each case estimating the equation (and computing the portion of the D-R gaps associated with the shock) over our 64-year base period, 1949:Q2-2013:Q1, or, if the data don't allow that, the longest time period the data allow.[21] Later, in

[19] The strengths and weaknesses of this method (and the particular choice for $z$) are well known from the large literature on identifying monetary policy shocks (c.f., Christiano, Eichenbaum, and Evans (1999)).

[20] Arguably, oil shocks have more to do with U.S. *foreign* policy than with U.S. *economic* policy—the two Gulf Wars being prominent examples. That said, several economists have claimed that U.S. monetary policy played an important role in bringing on the oil shocks. See, for example, Barsky and Kilian (2002).

[21] From (1), the effect of the explanatory variables on $y_t$ is $\sum_{j=1}^{k}\sum_{i=0}^{m}\gamma_{ji,P}e_{j,t-i}$, where $m$ denotes the number of lags, and the expression is written to allow $\gamma$ to depend on party, so that $P = D$ or $R$. This yields the "explained" D-R gap:

Section 6, we present selected regressions of the form (1) that include several shock variables at once, recognizing that they are not quite orthogonal.[22] In these multivariate regressions, the sample size is the longest one over which *all* righthand variables are available.[23]

## 5. Explaining the partisan growth gap: Univariate results

To give away a bit of the conclusion right away, we begin with the three most promising variables: oil prices, productivity, and defense spending.

### 5.1 Oil shocks

Hamilton's (1983) classic paper makes the case that disruptions in the oil market and the associated increases in prices were important causes of recessions well before OPEC I. Hamilton (2003) proxies oil shocks with a nonlinear transformation of oil *prices*, "net oil price increases," which measures the value of the oil price at time $t$ relative to its largest value over the preceding 12 quarters:

$$P_t^{Hamilton} = \max\left(0, 100 \times \ln(O_t / O_{t-12:t-1}^{Max})\right).$$

Here $O_t$ denotes the price of oil, measured as the crude petroleum component of the producer price index, and $O_{t-12:t-1}^{Max}$ is the largest value of $O_t$ between $t-12$ and $t-1$. Note that Hamilton's measure captures only oil price *increases*, not *decreases*, so it posits an asymmetric effect of oil prices on economic activity: Increases in oil prices effect economic activity, presumably negatively, but decreases do not.

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$DR^{Explaiend} = T_D^{-1}\sum_{t=1}^{T}\sum_{j=1}^{k}\sum_{i=0}^{m} D_t \gamma_{ji,D} e_{j,t-i} - T_R^{-1}\sum_{t=1}^{T}\sum_{j=1}^{k}\sum_{i=0}^{m} R_t \gamma_{ji,R} e_{j,t-i}$, where $D_t$ is a Democratic 0-1 indicator for date $t$, $T_D$ is the number of Democratic quarters in the sample, and similarly for $R_t$ and $T_R$. The estimated value of $DR^{Explained}$ replaces $\gamma_{ij,P}$ with its estimated value, $\hat{\gamma}_{ij,P}$, so the sampling error in $\widehat{DR}^{Explained}$ is a linear function of the estimation errors $(\hat{\gamma}_{ij,P} - \gamma_{ij,P})$. The standard error for $\widehat{DR}^{Explained}$ is then readily computed from the covariance matrix of $\hat{\gamma}$.

[22] If we ignore multiple measures of the same conceptual shock (e.g., multiple measures of monetary policy), the various righthand variables come *close* to being orthogonal. Very few correlations are as large as 0.3 in absolute value. Numbers can be found in Table A.7 of the online appendix.

[23] An alternative econometric approach for explaining the historical D-R gap is to use a complete econometric model in which the endogenous variables are completely determined by well-defined exogenous "structural" shocks. Fully specified SVAR models or DSGE models are leading examples. In Appendix C, we carry out such an exercise using three DSGE models: Smets and Wouters (2007), Leeper, Plante and Traum (2010), and Schmitt-Grohé and Uribe (2012).

Killian (2008) provided a different measure of oil market disruptions by computing shortfalls in OPEC *production* associated with wars and other "exogenous" events. This variable is arguably a purer "shock" since prices depend on market reactions. But Killian's measure is less useful for our purposes because it is available only over a relatively short period: 1971:Q1 – 2004:Q3.

The first two lines of Table 6 show results from using these two oil shocks, in turn, as the sole *e* variable in estimating (1). $P_t^{Hamilton}$, which is available over the entire sample period, explains about 50 basis points of the full-sample 179 basis point D-R gap regardless of whether we use party-specific slope coefficients or constrain the two sets of slopes to be equal.[24] We also estimated equation (1) using Hamilton's measure allowing for a break in the oil price coefficients in 1985. The results, not shown in Table 6, are similar.

We get different results with $Q_t^{Killian}$, however. When (1) is estimated allowing different slopes by party, $Q_t^{Killian}$ explains 40 basis points of the much smaller 81 basis point D-R gap over its short sample period. But when the slopes are constrained to be equal—an hypothesis which an *F* test soundly rejects—its explanatory power falls to 21 basis points (and is not significant). In what follows, we focus on the Hamilton shocks for a simple, pragmatic reason: The sample period is much longer. But the Kilian shocks send a similar message: Different oil shocks by party have been an important contributor to the D-R growth gap.[25]

The first two lines of Table A.8 in the appendix display the estimated effects of oil shocks for each presidential term. $P_t^{Hamilton}$ shows large negative growth effects in the Nixon-Ford and Carter terms for OPEC I and II. But the largest estimated negative effect by far comes in G.W. Bush's second term. (The Kilian variable does not extend that far.) Oil prices increased three-fold during Bush II-2, which undoubtedly played a role in the onset of the Great Recession (see Hamilton (2009)). However, most economists believe that financial factors (considered below) were the major cause of the 2007-2009 recession.

**5.2 Productivity**

[24] An *F*-test provides little evidence of a statistically significant difference in the coefficients. The *p*-value is 0.72.
[25] The Hamilton and Kilian shocks are *not* the same; indeed, they are close to orthogonal. Curiously, if we estimate the equation using the *Hamilton* shock, but over the *Kilian* period (1972:Q2-2004:Q3), we get the opposite sign for the estimated D-R gap. Over this short period, oil price shocks favored Republicans.

We noted earlier that total factor productivity (TFP) grew substantially faster under Democratic presidents, but that TFP has been procyclical.[26] Since resource utilization has been systematically higher under Democrats, the data need to be cyclically adjusted. Panel B of Table 6 shows results that do so in four different ways.

**Table 6: Explaining the D-R Growth Gap**

| Shock | Sample Period | Total D-R Gap | Explained D-R Gap | |
|---|---|---|---|---|
| | | | Distributed Lag Specification | |
| | | | Common | Party-Specific |
| **A. Oil** | | | | |
| Prices (Hamilton) | 1949:Q2-2013:Q1 | 1.79 (0.64) | 0.49 (0.10) | 0.51 (0.11) [0.72] |
| Quantities (Killian) | 1972:Q3-2004:Q3 | 0.81 (0.75) | 0.21 (0.19) | 0.40 (0.18) [0.00] |
| **B. Productivity** | | | | |
| TFP (Util. Adj.,Fernald) | 1949:Q2-2013:Q1 | 1.79 (0.64) | 0.05 (0.02) | 0.05 (0.02) [0.65] |
| Labor Prod. (LR-VAR) | 1950:Q3-2013:Q1 | 1.72 (0.62) | 0.20 (0.08) | 0.16 (0.07) [0.07] |
| TFP (LR-VAR) | 1950:Q3-2013:Q1 | 1.72 (0.62) | 0.29 (0.05) | 0.29 (0.05) [0.99] |
| TFP (Util. Adj. by authors) | 1950:Q3-2013:Q1 | 1.72 (0.62) | 0.50 (0.07) | 0.50 (0.07) [0.15] |
| **C. Defense Spending** | | | | |
| Ramey | 1949:Q2-2013:Q1 | 1.79 (0.64) | 0.21 (0.04) | -0.04 (0.44) [0.70] |
| Fisher-Peters | 1949:Q2- 2008:Q4 | 2.12 (0.65) | 0.02 (0.06) | 0.02 (0.05) [0.59] |
| **D. International** | | | | |
| GDP Growth Europe | 1963:Q4-2013:Q1 | 1.18 (0.65) | 0.03 (0.16) | 0.04 (0.15) [0.27] |
| Exchange Rates | 1975:Q4-2013:Q1 | 0.64 (0.69) | 0.00 (0.06) | -0.04 (0.07) [0.01] |
| **E. Taxes** | | | | |
| Romer and Romer | 1949:Q2-2007:Q4 | 1.97 (0.64) | 0.01 (0.06) | -0.01 (0.04) [0.17] |
| **F. Monetary Policy** | | | | |
| Romer and Romer | 1970:Q3-1996:Q4 | 0.47 (0.95) | –0.09 (0.17) | -0.15 (0.13) [0.43] |
| SVAR (Sims and Zha) | 1961:Q4-2003:Q1 | 1.49 (0.70) | 0.05 (0.13) | -0.10 (0.12) [0.03] |
| SVAR (authors) | 1957:Q2-2008.Q4 | 1.77 (0.64) | –0.23 (0.12) | -0.32 (0.12) [0.20] |
| **G. Interest Rates and Loan Surveys** | | | | |
| Baa-Aaa Spread | 1950:Q1-2013:Q1 | 1.91 (0.67) | 0.25 (0.18) | 0.17 (0.19) [0.00] |
| GZ Spread | 1975:Q3-2012:Q4 | 0.60 (0.70) | 0.51 (0.21) | 0.34 (0.16) [0.10] |
| TED Spread | 1973:Q3-2013:Q1 | 0.90 (0.69) | 0.16 (0.07) | 0.03 (0.07) [0.00] |
| FRB SLOOS | 1972:Q3-2013:Q1 | 0.74 (0.67) | –0.11 (0.08) | -0.08 (0.07) [0.00] |
| **H. Consumer Sentiment, Expectations, and Uncertainty** | | | | |
| Consumer Sentiment | 1962:Q3-2013:Q1 | 1.24 (0.64) | 0.05 (0.05) | 0.04 (0.05) [0.05] |
| Consumer Expectations | 1962:Q3-2013:Q1 | 1.24 (0.64) | 0.23 (0.11) | 0.17 (0.10) [0.08] |
| Uncertainty Index (BBD) | 1950:Q1-2013:Q4 | 1.91 (0.67) | –0.13 (0.06) | -0.14 (0.06) [0.19] |
| Uncertainty Index (JLN) | 1963:Q1-2013:Q4 | 1.26 (0.64) | 0.18 (0.09) | 0.17 (0.09) [0.27] |

Notes: The "Total" D-R Gap is the difference in the average growth rate of real GDP under Democratic and Republicans presidents for the sample period shown. The "Explained" gap is computed from (1) using the shock shown. Results are shown two ways: imposing common values for the distributed lag weights and allowing these coefficients to vary by party. Newey-West (6 lag) standard errors are shown in parentheses. *p*-values for *F*-statistics testing the equality of the party-specific distributed lag coefficients are shown in brackets in the final column.

[26] This may no longer be true. See Fernald and Wang (2015).

The first uses Fernald's (2014) quarterly utilization-adjusted TFP growth; it explains a negligible 5 basis points of the full-sample 179 basis point D-R gap.[27] The next line adopts Gali's (1999) methodology to create a VAR-based measure of long-run shocks to *labor* productivity (not TFP). We compute these shocks using a VAR(6) that includes real GDP, payroll employment, inflation (from the GDP deflator), and the 3-month Treasury bill rate. Our implementation of Gali's method suggests a larger role for productivity shocks than the Fernald measure does: 16 to 20 basis points. In the next line, we use the same Gali methodology but replace *labor* productivity shocks with *TFP* shocks. The explanatory power of productivity shocks rises to 29 basis points (out of 172 in the relevant sample).

Finally, in the last line of Panel B, we cyclically adjust the TFP data ourselves by regressing TFP growth on current and lagged values of the gap between actual and "trend" unemployment rates—where "trend" is defined by a local moving average.[28] When we do this, we find a very large 50-basis-point advantage for Democratic presidents—about the same as from Hamilton oil shocks. In sum, cyclically-adjusted measures of productivity (except Fernald's) seem to explain a substantial portion of the D-R growth gap, but the estimated amount is quite sensitive to the method of cyclical adjustment. (It is not sensitive, however, to whether or not the slope coefficients are constrained to be equal.)

**5.3 Wars**

Wars are important, and arguably exogenous, fiscal shocks. Sharp increases in military spending tend to cause growth spurts, and sharp cutbacks in military spending can cause recessions. The U.S. experienced four major wars in the post-WWII period. Could it be that much of the Democratic growth edge comes from the timing of wars? After all, Truman presided over the Korean War boom, and Eisenhower ended it; and Johnson presided over the Vietnam buildup while Nixon, after a long delay, ended it. But on the other hand, Reagan initiated a huge military buildup in peacetime, and both Bushes were wartime presidents.

The historical record shows a huge partisan gap in the growth rates of federal defense spending, as mentioned earlier. Real military spending grew, on average, by 5.9% under Democrats but only by 0.8% under Republicans (data are in Appendix Table A.4). However, on

[27] Readers of the working paper version of this paper may recall a very different conclusion: that Fernald's utilization-adjusted TFP shocks have substantial explanatory power for the D-R gap. After our working paper was circulated, Fernald (2014) changed his methodology for cyclical adjustment. We use his new time series here, and get very different results.

[28] We use the local moving average described in Appendix B with $\kappa = 67$.

average, federal defense spending accounts for just 8% of GDP over the postwar period. It would be hard for a tail that small to wag such a big dog.

One simple but crude way to take out the effect of wars on the Democratic-Republican difference in economic performance is to eliminate the following presidential terms from the analysis: Truman (1949-53) and Eisenhower 1 (1953-1957) for the Korean War, Johnson (1965-1969) and Nixon (1969-1973) for the Vietnam War, Bush I (1987-1991) for the Gulf War, and the Bush and Obama administrations for the Iraq and Afghanistan Wars. Appendix Table A.9 shows the results of doing this in various combinations. The numbers there show that essentially all of the large D-R difference in the average growth of defense spending comes from the Korean War. If the Truman administration is excluded, defense spending increased on average by 1.2% during Democratic administrations versus 0.8% under Republicans, a negligible difference. Eliminating the Truman and first Eisenhower terms from the analysis lowers the Democratic-Republican difference in average GDP growth from 1.79 percentage points to 1.43 percentage points.

Panel C of Table 6 shows results from using more refined defense spending shocks. The first is the defense-related government expenditure shock series created by Ramey (2011) from the legislative record. When the slope coefficients are constrained to be equal across parties, an hypothesis that cannot be rejected, these shocks explain 21 basis points of the full-sample D-R gap. If we allow the slopes to differ by party, we get nothing intelligible because the Ramey defense spending shocks include only one large observation--an increase in average GDP growth of 1.1 percent during the Truman administration. There is nothing close in any Republican term.[29]

We also looked at the defense-related government expenditures shocks measured by Fisher and Peters (2010). These shocks are constructed as excess returns for a portfolio of stocks of defense contractors. But because these returns were not unusually large during the Korean War buildup, the Fisher-Peter shocks explain essentially none of D-R gap.

**5.4 International economic events**

Could it be that Democratic presidents just happened to preside over periods of time when growth in the rest of the world was faster than under Republican presidents--and that this faster

[29] The small variation of Ramey defense spending shocks during Republican presidencies leads to an enormous standard error for the estimated D-R gap. See Appendix Table A.8 for details.

growth abroad helped pull the U.S. along? This channel is difficult to assess because it involves finding changes in rest-of-the-world growth that are exogenous to U.S. domestic growth. Panel D shows the results of two attempts to do so.

In the first, we measure international shocks by using real GDP growth among the European OECD countries, and eliminate feedback by using the VAR methodology described in Section 4. The point estimates suggest that these European growth shocks explain essentially none of the D-R gap over a sample period beginning in 1963:4. The next line shows results using a VAR-based measure of exchange rate shocks. Again, there looks to be nothing there. None of this is to deny that there are foreign influences on U.S. GDP growth,[30] it's just that they don't appear to play any role in the D-R gap.

**5.5 Fiscal policy**

We have just seen that defense spending shocks other than the Korean War buildup don't explain the D-R growth gap. But what about other sorts of fiscal policy shocks or deliberate (systematic) fiscal stabilization policy? Panel E of Table 6 shows results using the Romer and Romer (2010) measure of *tax* shocks constructed from the narrative record. They explain none of the Democratic-Republican difference.

So far, our analysis of fiscal policy has focused on *shocks* rather than on *systematic* differences between Democratic and Republican presidents in their policy reactions to the state of the economy. Limited data make it difficult to estimate even relatively simple policy functions, such as those in Auerbach (2012), reliably.[31] However, we offer one simple piece of empirical analysis that suggests little difference between Democratic and Republican presidents in discretionary fiscal reactions to economic activity.

Figure 3 plots the four-quarter change in the structural surplus (as a share of potential GDP), for each quarter of each presidential term starting with the fourth quarter,[32] measured vertically, against the four-quarter change in real GDP (lagged one year), measured horizontally. (Thus

[30] The seemingly obvious international variable to use is US exports. But when we did this, the $\gamma$ coefficients were predominantly *negative*, indicating that positive export shocks *reduce* GDP--a puzzling result. For this reason, we do not consider exports in Table 6.

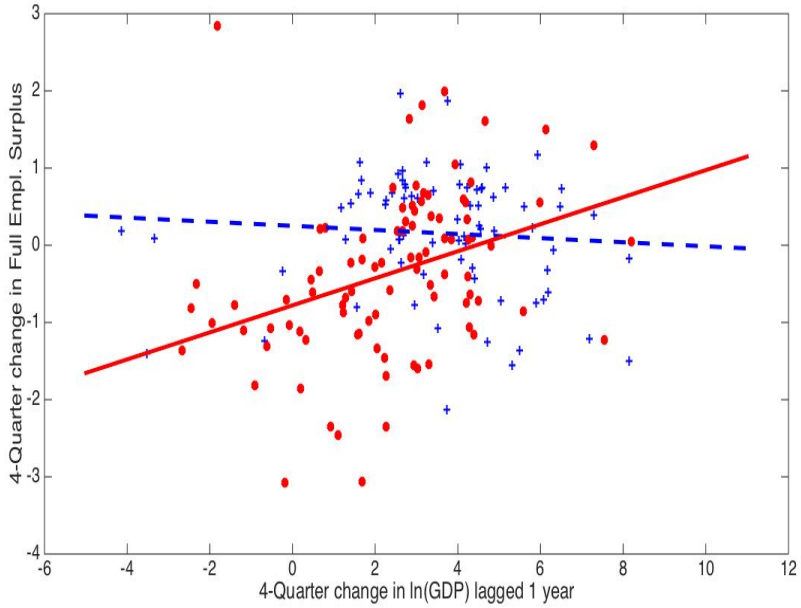
[31] It is interesting, however, that Auerbach and Gorodnichenko's (2012) analysis suggests stronger effects of fiscal policy during recessions, so that Republicans (who presided over more recessions) had a more powerful fiscal lever than Democrats. For an alternative analysis of potential asymmetric effects of fiscal policy during expansions and recessions, see Ramey and Zubairy (2014).

[32] We begin with the fourth quarter of each term because we are using four-quarter lags. The first three quarters thus would straddle presidential terms.

there are 13 observations for each full term used in the figure.) Plus signs (+) in the chart connote observations for Democratic presidents and dots (•) connote observations for Republicans. Because the structural surplus data begin only in 1960, the data start in the final quarter of Eisenhower's second term.

The figure shows regression lines fit separately to observations corresponding to Democratic and Republican presidents. These lines are like rump fiscal reaction functions for the two parties, and the scatter-plot suggests no fiscal stabilization at all under Democratic presidents (the slope is -0.03 with standard error 0.07) and a modest amount under Republican presidents (slope = 0.18, s.e. = 0.07). Thus fiscal policy appears to have been somewhat more stabilizing under Republicans. And as we saw back in Table 2, the deficit is generally larger under Republicans. Thus fiscal policy cannot explain any of the D-R growth gap.

**Figure 3: Change in full employment surplus v. lagged GDP growth**




Notes: Democrats: + and dashed line. Republicans: circles and solid line

### 5.6 Monetary policy

U.S. presidents do not control monetary policy, of course. And since the famous Treasury-Fed accord occurred in 1951, pre-Accord data cannot be influencing our calculations much. Yet we know, for example, that Arthur Burns was predisposed to assist Richard Nixon's reelection

campaign in 1972.[33] And we know that President Reagan was eager to get rid of Paul Volcker, who was viewed as insufficiently pliable, in 1987.[34] While these are both examples of Republican influence on monetary policy, could it be that Democratic presidents have wielded their appointment (or persuasion) powers more skillfully to obtain more growth-oriented Federal Reserve Boards?

The proposition seems implausible, but to test it we label a Fed chairman as a Democrat if he was first appointed by a Democratic president, and as a Republican if he was first appointed by a Republican president. Under this classification, Thomas McCabe, William McChesney Martin, G. William Miller, and Paul Volcker code as Democrats while Arthur Burns, Alan Greenspan, and Ben Bernanke code as Republicans—even though Volcker was probably the most hawkish of the lot and Greenspan and Bernanke were among the most dovish.

The U.S. economy did grow faster under Democratic Fed chairmen than under Republican chairs. Table 7 (rightmost column) shows that average real GDP growth was 4.00% when Democrats led the Fed, but only 2.73% when Republicans did—a notable growth gap of 1.27 percentage points). The table also displays average growth rates under all four possible party configurations of president and Fed chair. We see that the economy grew fastest (5.27%) when Democrats held both offices (example: Truman and Martin) and slowest (2.41%) when Republicans held both (example: Bush I and Greenspan). Faster growth under Democratic rather than Republican Fed chairmen is apparent whether the president was a Democrat or a Republican, but the difference is minimal when a Republican occupied the Oval Office and large when a Democrat did.

**Table 7: Average GDP Growth under presidents and Fed chairs**

| | **Party of President** | | | |
|---|---|---|---|---|
| **Party of FRB Chair** | Democrat | Republican | | **All** |
| Democrat | 5.27 (0.70) [60] | 2.73 (0.76) [60] | | 4.00 (0.54) [120] |
| Republican | 3.25 (0.38) [52] | 2.41 (0.53) [84] | | 2.73 (0.38) [136] |
| All | 4.33 (0.46) [112] | 2.54 (0.45) [144] | | 3.33 (0.34) [256] |

Notes: Entries are average growth rates of real GDP by party of the President and Fed Chair. The numbers in parentheses are standard errors (Newey-West with 6 lags) and the numbers in brackets are the number of quarters.

If Federal Reserve policy fostered faster growth under Democratic presidents, the FOMC was *not* doing it via lower interest rates, as Panel G of Table 2 showed. The average *levels* of

[33] See, for example, Abrams (2006).
[34] See Silber (2012), Chapter 15.

both nominal and real interest rates were lower under Democratic presidents, but these differences do not come close to statistical significance. There is, however, a notable tendency for both the nominal and real Federal funds rate to *rise* during Democratic presidencies and *fall* during Republican presidencies, suggesting that the Fed normally tightens under Democrats and eases under Republicans.[35] Of course, such an empirical finding does not imply that the Fed was playing politics to favor Republicans. Rather, it is just what you would expect if the economy grew faster (with rising inflation) under Democrats and slower (with falling inflation) under Republicans—as it did.

Figure 4 presents two scatter plots that summarize the correlation between changes in the Federal funds rate and lagged real growth, in much the same way as Figure 3 does for fiscal policy. Specifically, each point plots the four-quarter change in the Federal funds rate vertically and the four-quarter change in the logarithm of real GDP (lagged one year) horizontally for each quarter (so there are 13 points for each term). Democratic terms are again plotted as plus signs and Republican terms are plotted as dots. An upward slope connotes a stabilizing monetary policy: raising interest rates when the economy grows faster.

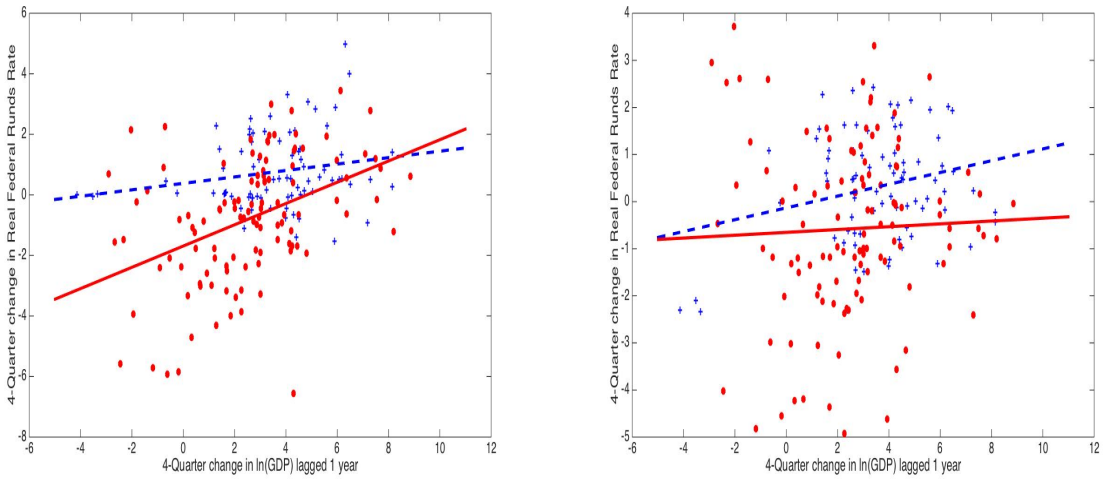
Panel A plots the change in *nominal* interest rates, and Panel B uses *real* interest rates (computed as $r_t = R_t - 100\times\ln(P_t/P_{t-4})$, where $R_t$ is the nominal rate and $P_t$ is the PCE price deflator). With real rates, arguably the superior measure, the scatterplot shows a slight positive slope under Democratic presidencies (0.13, s.e. = 0.11) and essentially no slope under Republicans (0.03, se = 0.10), so there is little monetary stabilization under either party. That the Democratic line is a bit higher indicates that monetary policy was, on average, slightly tighter when the president was a Democrat.

By contrast, nominal rates show a distinctly positive (thus, stabilizing) slope under Republicans (0.35, with s.e.=0.12) but much less under Democrats (0.11, with s.e.=0.09). And, as noted earlier, there is a strong case to be made that nominal interest rates rose, on average, under Democrats but fell under Republicans. Thus, if there was any partisan growth advantage stemming from monetary policy, it would seem to have favored Republican presidents.

[35] For these simple calculations, we use *ex post* rather than *ex ante* real rates, with inflation measured over the current and three preceding quarters.

**Figure 4: Change in Federal Funds rate and lagged GDP growth**

**A. Nominal Rates** **B. Real Rates**




Notes: Democrats: + and dashed line. Republicans: circles and solid line

With these plots as background, Panel F of Table 6, which considers the effects of monetary policy shocks in the same regression framework we have used to consider other shocks, holds no surprises. The first line uses shocks identified from the narrative record by Romer and Romer (2004), which are available for only a small portion of the sample (1970-1996). The other two monetary policy shocks are computed from SVAR models. The first are the interest rate shocks identified by Sims and Zha (2006) in their Markov-switching SVAR (available 1961-2003). The second are shocks computed by us using a standard Cholesky identification with the Federal funds ordered last in a VAR that also includes real GDP, inflation, and commodity prices. (The sample period is truncated at 2008:Q4 to avoid potential nonlinearities associated with the zero-lower bound for the funds rate.)

If anything, controlling for monetary policy shocks pushes in the "wrong" direction, suggesting a policy-induced growth advantage for Republican presidents. The monetary policy variable with the most explanatory power for the D-R growth gap is our own time series on SVAR shocks, which gives Republican an edge of either 23 or 32 basis points.[36]

[36] As the table indicates, the simpler "equal slope coefficients" specification cannot be rejected at standard significant levels.

### 5.7 Financial sector disruptions

Financial market disruptions, which may be related to policy, are difficult to measure. We try two distinct approaches.

The main one uses interest rate spreads, and we consider three. The first is the Baa-Aaa bond yield spread, a risk spread on long-term bonds, which is available over the entire postwar period. The second is the "excess bond premium," constructed by Gilchrist and Zakrajšek (2012), which measures the spread of corporate over riskless bonds, after controlling for the normal effect of the business cycle.[37] The GZ spread was designed to be an indicator of credit market conditions such as the price of bearing risk; it is available only from 1973. The final spread is the Treasury bill-Eurodollar (or "TED") spread, which is commonly used as an indicator of liquidity problems; it is available from 1971.[38]

The second approach to assessing financial market stress uses the Federal Reserve's Senior Loan Officers Opinion Survey (FRB SLOOS), which provides a direct, albeit subjective, measure of credit market tightening or loosening. The version of SLOOS that we use is available from 1970.

We computed shocks to each of these four financial variables using the VAR methodology discussed in Section 4. Panel G of Table 6 shows the results when these variables are analyzed one at a time. The estimated effects on the D-R gap differ markedly across the four variables, but there certainly looks to be something here. The three interest rate spreads explain between 3 basis points (which is nothing) and 51 basis points (which is quite a lot) of the D-R gap; but those numbers are not directly comparable because the samples differ. The SLOOS shocks go the "wrong" way, making the average growth rate under Democrats 8 to 11 basis points *lower*. Interestingly, for three of the four indicators of financial stress, *F* tests *do* suggest that the slopes differ by party, although (as for most of the other variables) the estimated effects on the D-R gap do not differ dramatically across the two specifications. The GZ spread works best for explaining the D-R gap, but its sample is very short.

Term-by-term results are shown in the online appendix, Table A.8, and they tell an interesting story. No one will be surprised to learn that three of the four variables suggest that financial turbulence had a substantial negative effect on growth during the second administration

[37] The GZ spread also controls for maturity, callability, and default risk.
[38] Since 1986, the TED spread has been conventionally defined as the spread between LIBOR and T-bills. We use the original meaning to create a consistent series dating back to 1971.

of George W. Bush—the time of the financial crisis. However, two of these three variables (the TED spread and SLOOS) show *even larger* negative effects on growth in the Carter administration, presumably due to the credit controls of 1980. The GZ spread looks like an outlier. It has relatively small effects on GDP growth during the Carter and Bush II-2 terms, but much larger effects during the Reagan and Clinton presidencies. We are therefore inclined to think it does *not* measure financial distress.

**5.8 Confidence, Expectations, and Uncertainty**

"Confidence," be it consumer confidence or business confidence, is a slippery concept which would not normally be thought of as an instrument of economic policy. But the observed faster GDP growth under Democrats could have elements of a self-fulfilling prophecy if the election of a Democratic president boosts confidence--perhaps because people *believe* Democrats will do better--and that, in turn, boosts spending.

Two facts point in this direction. First, Figure 2 showed that the most extreme partisan growth gap occurs in the first year of a newly-elected Democratic president. Second, we mentioned earlier that consumer durables and fixed investment--two of the spending components presumably among the most sensitive to confidence--exhibit the largest Democratic growth advantages. Hence there is a plausible story wherein the election of a Democrat boosts confidence and higher confidence, in turn, boosts spending. But can we find more direct evidence that confidence drives partisan differences? It is not easy. First, we look at very short-run changes around electoral transitions (from a Republican president to a Democrat, or vice-versa). Then we consider longer-run changes in confidence or expectations.

Since February 1979, the Gallup Poll has been asking Americans, "In general, are you satisfied or dissatisfied with the way things are going in the United States at this time?"[39] Looking at how the balance of "satisfied" versus "dissatisfied" Americans changed during presidential transition periods shows only small impacts of presidential elections on the attitudes of the broad public, and a negligible difference between the two parties.[40]

Business confidence is even harder to measure. The longest consistent time series seems to be the National Federation of Independent Business's (NFIB) Small Business Optimism Index,

[39] This question preceded the now-famous "right-track/wrong track" question, which has a much shorter history.
[40] Since the precise calendar dates of the survey change over time, we could not always "bracket" the election-to-inauguration period. Furthermore, the available data cover only four transitions: Carter to Reagan, Bush I to Clinton, Clinton to Bush II, and Bush II to Obama.

which dates back to 1975. Those data cover five presidential transitions from one party to the other, each running from the fourth quarter of the election year to the first quarter of the following year. Three of these are Republican-to-Democrat transitions (Ford to Carter, Bush I to Clinton, and Bush II to Obama), and the average change in the NFIB index during them was a negligible +0.2 points. (This includes the Bush II to Obama transition, during which the economy was collapsing.) The other two are Democrat-to-Republican transitions (Carter to Reagan, and Clinton to Bush II), where the change in the NFIB index averaged -2.0 points. Surprisingly, proprietors of small businesses have been a bit more optimistic about incoming Democrats than Republicans. But the differences are small enough to ignore.

The performance of the stock market between Election Day and Inauguration Day might be taken, in part, as a statement of investor confidence—or lack thereof—in the incoming administration. It gives a slight edge to incoming Republicans,[41] despite the fact—displayed in Panel C of Table 2--that stock prices actually rise much faster under Democratic presidents than under Republican presidents. Specifically, the S&P 500 gained a minuscule 0.15%, on average, during the four Democrat-to-Republican transitions, but lost an average of 1.38% during the four Republican-to-Democrat transitions. However, more than 100% of the average Democratic transition loss came because stock prices were crashing during the Obama transition. Since the economy was collapsing at the time, it is hard to attribute this drop to lack of confidence in Barack Obama.

Turning now to more conventional time series estimates, the University of Michigan's Index of Consumer Sentiment (ICS) has been collected on a consistent basis since 1960. Barsky and Sims (2012) note that the ICS is based in part on answers to questions focused on evaluating the *current* (or recent past) economic situation and in part on answers to questions focused on expectations of *future* conditions. Correspondingly, the ICS can be decomposed into an index associated with current conditions (the ICC) and another associated with expectations of future conditions (the ICE). We construct "shocks" to each of these two indices by using the same procedure as for many of the other variables, that is, by ordering it last in our standard VAR.

Results from assessing the impacts of these confidence shocks in equation (1) are shown in Panel H of Table 6. Evidently, controlling for the current-conditions component of the Index of

[41] We measure the closing price of the S&P 500 from the day before Election Day (always a Monday) until Inauguration Day (January 20). In one case, Inauguration Day fell on a Saturday; in that case, we used January 19.

Consumer Sentiment has a small effect on the D-R gap, around 5 basis points. Shocks to consumer *expectations*, thus measured, explain more like 20 basis points of the 124 basis point D-R gap over the shorter 1962:3-2013:1 period.[42] Notice, once again, that while F-tests reject equal coefficients for the two parties (at the 10% level), the estimated effects on the D-R gap differ little between the two specifications.

Uncertainty is sometimes viewed as indicating or contributing to a lack of confidence. The third line of Panel H of Table 6 shows results using shocks to the historical news-based index of *policy* uncertainty developed by Baker, Bloom, and Davis (2013), where the shocks are again computed using the VAR described in Section 4. Uncertainty shocks, measured this way, favored Republicans by 12 basis points—the "wrong" sign.

Economic policy, of course, is not the only source, probably not even the major source, of macroeconomic uncertainty. Jurado, Ludvigson, and Ng (2015) created a more comprehensive time series on macro uncertainty, which they define as (econometric) *unpredictability*. They observe (p. 1177) that their measures "display significant independent variations from popular uncertainty proxies" such as Baker, Bloom, and Davis (2013). When we construct shocks in the JLN uncertainty index in the usual VAR way, we obtain the results shown in the final line of the table: an 18 basis point contribution to the D-R growth gap (over a sample that only starts in 1963). This effect has the "right" sign.

## 6. Explaining the partisan growth gap: Multivariate results

So how much of the somewhat-mysterious partisan growth gap can be explained by observable variables? The shocks listed in Table 6 are not mutually exclusive. For example, the high GDP growth during Truman's elected term (the highest in our sample) reflected positive productivity shocks, an extraordinary defense buildup, better-than-average oil-price performance, and low policy uncertainty. Growth during Bush II's second term (the lowest in the sample) was plagued by a huge oil shock, poor TFP performance, severe financial disruption, and—unsurprisingly—low consumer expectations. Furthermore, as noted earlier, the different shocks are not quite orthogonal. For example, and not surprisingly, oil price increases tend to be

[42] We find similar results using the 5-year-ahead and 12-month-ahead expectations component of the ICE. We have also investigated the effects of future ("news") productivity shocks using the identification scheme of Barsky and Sims (2011). Using their data and sample period (1960-2007), "news" and "surprise" components of TFP explain none of the D-R gap (indeed, the gap is larger after controlling for these shocks).

associated with lower consumer expectations (corr = -0.21). So the *joint* effects of various shocks in combination cannot be determined by just adding up the univariate contributions.

Unfortunately, there are so many candidate explanatory variables that the combinatorics of equation (1) are daunting. We proceed as follows. First, in recognition of the fact that different variables are available over different subperiods, we consider "full sample" estimates in Table 8 and "shorter sample" estimates separately in Table 9.[43] Second, since our univariate results point to Hamilton oil shocks and some measure of adjusted TFP as our two most robust regressors, we include them in all but one of the multivariate regressions in both tables. However, Ramey defense shocks appear only in the full-sample regressions because the shorter samples exclude the Korean War years.

The formats of Table 8 and 9 are identical. Each column represents a multivariate regression of the form (1). The top two lines record the sample period and the observed D-R growth gap over that period, which is what we seek to explain. For example, the full-sample (1949:Q2-2013:Q1) growth gap is 179 basis points. The next panel of lines ("Common Lag Weights"), ranging from two lines to five, show the number of percentage points of the D-R gap explained by each explanatory variable in the multivariate setting.

Rather than display hundreds of estimated coefficients, Tables 8 and 9 show, for each explanatory variable in each regression, the *difference* between the average realization of $\gamma(L)e_t$ under Democratic and Republican presidents. Thus, for example, in column 1 of Table 8, better oil shocks account for a 49 basis point growth advantage for Democrats. The line labeled "Explained D-R Gap" at the bottom of panel (a) sums up the pieces of the gap explained by all the variables included in the regression. In the column 1 example, the two included variables (oil shocks and defense shocks) jointly explain 68 basis points of the gap when the slopes are constrained to be equal.

The first line of the bottom panel of Table 8 ("Party-specific Lag Weights") shows how much of the gap is explained when we allow different slopes by party—in the column 1 regression, it is 79 basis points. The final line displays the p-value for testing the null hypothesis of equal slopes. Notice that we can reject the null in four of the five cases shown in Table 8, but that the portion of the D-R gap explained is only modestly sensitive to the specification.

[43] Note that not all "full samples" cover the entire 1949:Q2-2013:Q1 period. "Short samples" mostly start some time in 1963. Details are in the top lines of Tables 8 and 9.

**Table 8: Multivariate Regressions Explaining the D-R Growth Gap: Long Sample Period**

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Sample Period | 1949:Q2 - 2013:Q1 | 1950:Q3 - 2013:Q1 | 1950:Q3 - 2013:Q1 | 1950:Q3 - 2013:Q1 | 1950:Q3 - 2007:Q4 |
| Total D-R Gap | 1.79 (0.64) | 1.72 (0.62) | 1.72 (0.62) | 1.72 (0.62) | 1.91 (0.62) |
| **(a) Common Lag Weights** | | | | | |
| **Variable** | | | | | |
| Oil (Hamilton) | 0.49 (0.09) | 0.36 (0.11) | 0.36 (0.11) | 0.36 (0.11) | 0.15 (0.09) |
| Defense (Ramey) | 0.19 (0.05) | 0.13 (0.05) | 0.12 (0.05) | 0.11 (0.05) | 0.17 (0.06) |
| TFP (Adj. by authors) | | 0.38 (0.07) | 0.38 (0.07) | 0.38 (0.07) | 0.38 (0.10) |
| Baa-Aaa spread | | | -0.03 (0.09) | | |
| Uncertainty (BBD) | | | | -0.03 (0.05) | |
| Taxes (RR) | | | | | -0.01 (0.01) |
| **Explained D-R Gap** | 0.68 (0.09) | 0.87 (0.10) | 0.84 (0.15) | 0.82 (0.15) | 0.69 (0.09) |
| **(b) Party-specific Lag Weights** | | | | | |
| **Explained D-R Gap** | 0.79 (0.35) | 0.96 (0.39) | 0.73 (0.43) | 0.93 (0.42) | 0.64 (0.55) |
| *p*-value | 0.71 | 0.04 | 0.01 | 0.01 | 0.03 |

As we move to the right in Table 8, we first add our own version of the cyclically-adjusted TFP shock in column 2. We chose this measure over the others because of its greater explanatory power in the univariate regressions (see Table 6, Panel B), and it raises the explained portion of the D-R gap by about 18 basis points.[44] Column 2 is our basic "full sample" regression, and the remaining three columns of the table investigate whether adding, one at a time, the Baa-Aaa bond spread, the BBD measure of policy uncertainty, or the Romer-Romer tax shocks add any explanatory power.[45] They do not.

Turning now to the shorter samples studied in Table 9, column 1 covers much the same ground as Table 8, except that the Ramey defense shocks are gone because the shorter samples

[44] Because of the need for lagged values of the unemployment rate in cyclical adjustment, we lose the first five observations of the sample. The D-R gap to be explaineds drops slightly, to 172 basis points.

[45] To utilize the Romer-Romer tax shocks, we must truncate the sample at 2007:Q4. Interestingly, the contribution of Hamilton falls precipitously in this truncated sample, as suggested by our earlier discussion of the large oil shock during G.W. Bush's second term.

exclude the Korean War years. Hamilton oil shocks and cyclically-adjusted TFP shocks together now explain over 70 basis points of the smaller 126 basis-point D-R gap in the post-1962 sample. Columns 2-4 try adding, one at a time, European growth shocks, consumer expectations (ICE shocks), and predictive uncertainty (the JLN shocks) to the regression. In the preferred specifications, which generally allow different slope coefficients by party, neither uncertainty shocks nor consumer expectation shocks contribute much to our ability to explain the D-R growth gap (columns 3 and 4). But European growth shocks (column 2) do—boosting the explained portion by about 10 basis points. Finally, column 5 shows that monetary policy shocks had essentially no incremental effect on the D-R gap in the shorter period that is not affected by the zero lower bound.

The best regression here, then, seems to column 2 with common lag weights, where Hamilton oil shocks, cyclically-adjsuted TFP shocks, and European growth shocks together explain 82 basis points of the 118 basis-point D-R gap (almost 70%).

## 7. Conclusions

While economists, political scientists, and even lay people have known for decades that macroeconomic variables like GDP growth and inflation influence elections, this paper makes a landing on a previously-dark intellectual continent: How, if at all, do election outcomes influence subsequent economic performance. What do we learn from this exploration?

First, and most robust, there is a systematic and large gap between the US economy's performance when a Democrat is President of the United States versus when a Republican is. Democrats do better on almost every criteria. Using real GDP growth over the full sample, the gap is 1.79 percentage points--which is stunningly large relative to the sample mean. The partisan growth advantage is correlated with Democratic control of the White House, not with Democratic control of Congress.[46]

On the spending side, much of the D-R growth gap in the United States comes from greater business spending on fixed investment and greater consumer spending on durables. And it comes mostly in the first year of a presidential term. The superior growth record under Democrats cannot be attributed to superior initial conditions, however. It is not forecastable by standard techniques, nor was it actually predicted by professional forecasters. Nor does the D-R

[46] Appendix D shows that a similar partisan growth gap appears in Canada, but not in the UK, France, or Germany.

gap stem from different trend rates of growth at different times, nor to any (measureable) boost to confidence when a Democrat is elected president.

**Table 9: Multivariate Regressions Explaining the D-R Growth Gap: Short Sample Period**

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Sample Period | 1963:Q1 - 2013:Q1 | 1963:Q4 - 2013:Q1 | 1962:Q3 - 2013:Q1 | 1963:Q1 - 2013:Q1 | 1957:Q2 - 2008:Q4 |
| Total D-R Gap | 1.26 (0.64) | 1.18 (0.65) | 1.24 (0.64) | 1.26 (0.64) | 1.77 (0.64) |
| **(a) Common Lag Weights** | | | | | |
| **Variable** | | | | | |
| Oil (Hamilton) | 0.43 (0.14) | 0.43 (0.13) | 0.43 (0.14) | 0.41 (0.14) | 0.28 (0.12) |
| TFP (Adj.by authors) | 0.29 (0.06) | 0.23 (0.04) | 0.33 (0.06) | 0.29 (0.06) | 0.36 (0.10) |
| GDP Europe | | 0.15 (0.07) | | | |
| Cons Expectations (ICE) | | | 0.09 (0.09) | | |
| Uncertainty (JLN) | | | | 0.04 (0.06) | |
| Mon.Policy (authors) | | | | | 0.02 (0.13) |
| | | | | | |
| **Explained D-R Gap** | 0.72 (0.12) | 0.82 (0.14) | 0.84 (0.14) | 0.74 (0.12) | 0.66 (0.20) |
| **(b) Party-specific Lag Weights** | | | | | |
| **Explained D-R Gap** | 0.71 (0.12) | 0.80 (0.14) | 0.67 (0.14) | 0.71 (0.11) | 0.29 (0.26) |
| *p*-value | 0.03 | 0.58 | 0.00 | 0.02 | 0.00 |

Democrats would probably like to attribute a large portion of the D-R growth gap to better fiscal (and perhaps monetary) policies, but the data do not support such a claim. If anything, and we would not make much of such small differences, both fiscal and monetary policy actions seem to be a bit more pro-growth when a Republican is president—even though GDP grows significantly faster under Federal Reserve chairmen appointed by Democrats than by Republicans.

It seems we must look instead to several variables that are less closely tied to U.S. economic policy. Specifically, Democratic presidents have experienced, on average, better oil shocks than Republicans (some of which may have been induced by foreign policy), faster growth of defense spending (if the Korean War is included), and a better record of productivity shocks (which *may* relate to many different policies). More tenuously, both in terms of sample size and statistical significance, Democratic presidents may have also benefited from stronger growth abroad.

These factors together explain up to 56 percent of the D-R growth gap in the full sample, and as much as 69 percent over shorter (post-1963) samples. The rest remains, for now, a mystery of the still mostly-unexplored continent. The word "research," taken literally, means *search again*. We invite other researchers to do so.

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