Partisan Conflict *

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Abstract

American politics have become increasingly polarized in recent decades. This deep political divide has caused significant government dysfunction. Political divisions make the timing, size, and composition of government policy less predictable. According to existing theories, an increase in the degree of economic policy uncertainty or the volatility of fiscal shocks results in a decline in economic activity. This occurs because businesses and households may be induced to delay decisions that involve high reversibility costs such as investment, hiring under search costs, or entry and exit. In addition, disagreement between policymakers may result in stalemate, or, in extreme cases, a government shutdown. This adversely affects the optimal implementation of policy reforms, and may result in excessive debt accumulation. Testing these theories has been challenging given the low frequency at which existing measures of partisan conflict have been computed (in most studies, the series is available only biannually). In this paper, I provide a novel high-frequency indicator of the degree of partisan conflict. The index, constructed monthly for the period 1981-2013, is based on a search-based approach that measures the frequency of newspaper articles that report lawmakers' disagreement about economic policy. I document that while partisan conflict fluctuated around a constant mean for most of the sample period prior to 2006, it has exhibited a steep increasing trend since the Great Recession. Evaluating the effects of this increase using a simple VAR, I find that an innovation to partisan conflict increases government deficits and significantly discourages investment, output, and employment. Moreover, these declines are persistent, which may help explain the slow recovery observed since the 2007 recession ended.

JEL Classification: E3, H3

Keywords: partisan conflict, political disagreement, gridlock, polarization, American politics, economic policy uncertainty, business cycles, electoral cycle.

*Michael Chimowitz provided excellent research assistance for this project. The author can be contacted at Marina.Azzimonti@gmail.com. The views expressed in this paper are those of the author and do not necessarily reflect those of the Federal Reserve Bank of Philadelphia or the Federal Reserve System. This paper is available free of charge at www.philadelphiafed.org/research-and-data/publications/working-papers/

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1 Introduction

American politics have become increasingly polarized in recent decades (see McCarty, Poole, and Rosenthal, 2006)[1]. Intense partisan conflict, combined with a divided government, has lead to significant Congressional gridlock such as the budgetary warfare that eventually triggered the 18th government shutdown in US history in 2013. Political divisions are relevant for the evolution of economic variables because they make the timing, size, and composition of fiscal policy less predictable. This negatively affects household and firm's investment decisions, particulary those involving high reversibility costs (examples are entry and exit decisions, real state purchases, hiring under search costs, etc.). As a result, output and employment decline. In addition, legislative gridlock affects the optimal timing of policy reforms. As suggested by Alesina and Drazen (1991), this could result in inefficient accumulation of debt. The degree to which increasing conflict between policymakers affects the evolution of economic variables is difficult to quantify given that existing measures are available only at low-frequencies (mostly at a biannual level). Identification of its effects over the business cycle thus becomes challenging.

In this paper, I construct a novel high-frequency measure of the degree of *partisan conflict* (PC). The methodology is similar to that developed by Baker, Bloom, and Davis (2013) for computing economic policy uncertainty. It is based on a search-based approach that measures the frequency of newspaper coverage of articles reporting political disagreement about government policy—both within and between national parties—, normalized by the total number of news articles within a given period. The search is performed monthly in major US newspapers for the sample period January 1981 (when a relatively large number of digitalized news becomes available) to April 2013. I present the evolution of partisan conflict over time, and show that it is related to the number of tax expirations in Congress, the economic policy uncertainty index from Baker, Bloom, and Davis (2013), and the 'Congress disapproval ratings' collected by Gallup. I find the following set of stylized facts. First, PC scores fluctuated around a constant mean for most of the sample, but exhibited an increasing trend at the outset of the Great Recession, peaking at the end of 2012. This pattern is positively related to the large number of tax expirations during this period, which also show an increasing trend since 2006. Second, partisan conflict intensifies around election dates, with the difference between PC scores around election and non-election periods being statistically significant for both presidential and midterm elections. Partisan conflict scores also rise around fiscal policy debates, such as the approval of Obamacare, the debt ceiling debate, and the fiscal cliff. This is reassuring, suggesting that the indicator captures disagreement about well-known polemic issues. Interestingly, partisan conflict subsidies when the country is at war or subject to national security threats, such as the Gulf Wars and 9/11. This suggests that American politics are very polarized regarding economic policy, but less divided when it comes to national defense issues. Gallup disapproval ratings around these events provide independent evidence of this claim.

I quantify the effects of increasing partisan conflict on the real economy. In particular, I analyze changes in deficits, employment, output, and investment that result from a 52-point innovation to PC scores (equivalent to the increase in the index between 2006 and 2012). Intuitively, intense

[1]Bonica and Rosenthal (2013a) find similar results using the pattern of contributions made by legislators' supporters. Jensen, Kaplan, Naidu, and Wilse-Samson (2012) provide independent evidence of this, analyzing political discourse from Google Books and the digitalized Congressional Record during this period.

partisan conflict is associated with high volatility of fiscal policy (Azzimonti and Talbert, 2013). This deters economic activity because it increases economic policy uncertainty (Baker, Bloom, and Davis, 2013 or Fernández-Villaverde and Rubio-Ramírez, 2010). I find that the deficit increases by $404 million upon impact, and $976 million in the subsequent quarter. This is consistent with Alesina and Drazen's (1991) theory of delayed stabilization. Employment decreases as a result of the shock, with a peak loss of 1.76 million jobs after six quarters. Investment decreases up to 9.6% after five quarters, and output shrinks about 1.5%. These declines are not only large, but also persistent, which may help explain part of the slow recovery following the Great Recession.

The paper is organized as follows. A description of how the partisan conflict indicator was constructed is included in Section 2, which also discusses it evolution over time. Section 3 quantifies the effects of partisan conflict in the economy, while Section 4 concludes.

2 Measuring partisan conflict

A main objective of this section is to construct a high-frequency indicator of partisan conflict to later assess how it effects the real economy. Existing proxies of political disagreement are either too sparse or lack important dimensions associated with the political game which are relevant to the household's decision-making process. For example, measures based on poll data on voters' ideological differences (such as those developed by the Pew Research Center survey on values or Gallup) do not reflect the fact that voters' preferences may not be well represented in office due to the influence of interest groups or politicians' own agendas. Measures based on congressional records estimating ideological differences between legislators (McCarty, Poole, and Rosenthal, 2006; Bonica and Rosenthal, 2013; or Kaplan, et.al. 2013) are only available biannually. They display too little variability at business cycle frequencies to allow for identification of the impact of partisan conflict on the behavior of macroeconomic variables. In addition, polarization measures based on roll-call data ignore filibuster threats and presidential vetoes, which constitute important sources of policy uncertainty. The interaction between the executive and legislative branches, or among the House and the Senate under a divided government, may be an important factor affecting private sector decisions. Finally, while frequent political turnover is suggestive of partisan conflict, political instability measures (such as those developed by the World Bank, the IMF or ICRG's Political Risk Services) completely disregard the intensity of ideological differences. This paper takes on a different approach by analyzing the coverage of political news to create an indicator of the degree of partisan conflict. In doing so, it attempts to fill a gap in the literature by quantifying a more comprehensive measure at monthly and quarterly frequencies.

2.1 Index construction

I follow a similar methodology to that in Baker, Bloom, and Davis (2013) in constructing an indicator of partisan conflict. In particular, I use a search-based approach that measures the frequency of newspaper coverage of articles reporting political disagreement about government policy. The identification assumption underlying the index is that greater media-coverage of ideologically divisive issues, legislative gridlock, or filibuster threats, indicate intense disagreement between policymakers (either across party lines or within a party).

The search is performed in Factiva (by Dow Jones), a comprehensive database of news articles that provides access to more than 36,000 sources (such as newspapers, journals, magazines, television and radio transcripts, photos, etc.) from almost 200 countries in 28 languages. The database covers the period 1980 to 2013, although reliable coverage starts only in 1981. An advantage of using Factiva's search engine versus the ones provided by each particular source is that the quality of the search outcome is homogeneous and an identical set of predefined filters can be applied. In particular, I restrict the search to major US newspapers (see Table 2 in the Appendix for details) with news written exclusively in English, and restricted to events occurring in, or related to, the US. In addition, I exclude editorials and commentaries from the search in an attempt to reduce potential ideological biases (see the work by Gentzkow and Shapiro, 2010, on media slant). Routine general news, reviews, interviews etc. are also excluded in order to reduce the incidence of 'false positives.' A comprehensive list of filters applied can be found in Appendix 5.2.

The index is computed as follows. First, I count the number of articles per month that discuss disagreement between political parties, branches of government, or political actors (e.g. candidates not yet in office, legislators, etc.). In particular, I search for articles containing keywords in the following three categories: (i) political disagreement, (ii) government, and (iii) economic policy. Figure 2.1 includes a selection of terms used for each category (the complete list can be found in Appendix 5.3). Note that the search involves terms related to the political debate (e.g. 'fail to compromise'), as well as the outcome of the partisan warfare (e.g. 'gridlock' and 'filifusbter').

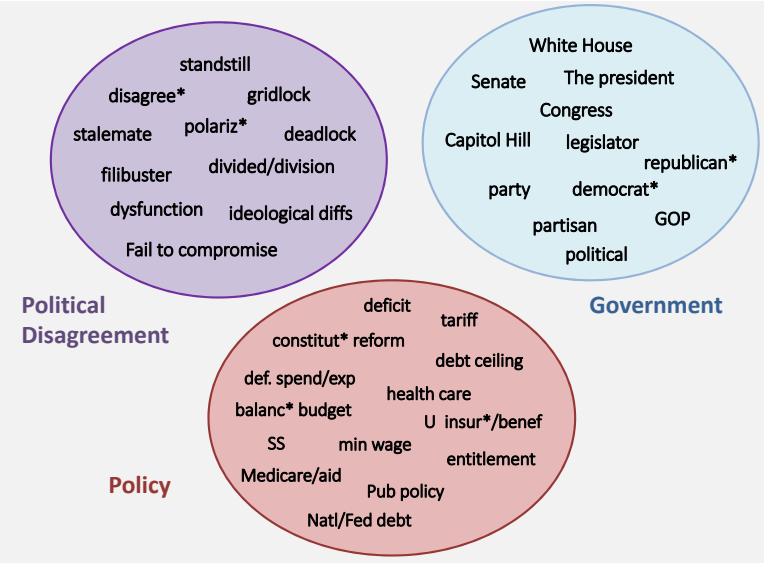


Figure 1: Sample keywords used in the search.

I focus on articles including keywords at the intersection of two or more of these three categories, as illustrated by the shaded areas in Figure 2.1.

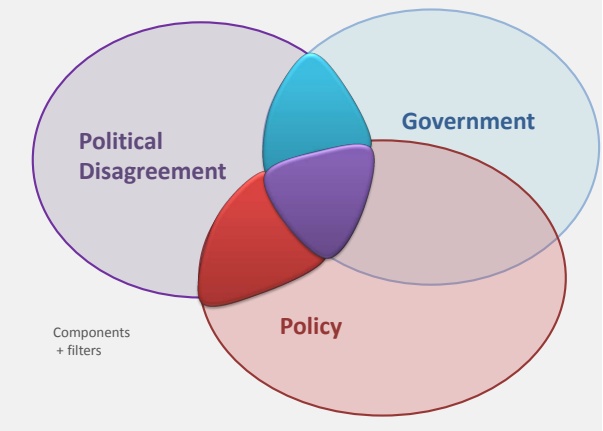


Figure 2: Graphical representation of the three components.

The search captures disagreement not only about economic policy (e.g., related to budgetary decisions, tax rates, deficit levels, welfare programs, etc.), but also about private sector regulation (e.g., financial and immigration reform), national defense issues (e.g., wars, terrorism), and other dimensions that divide policymakers' views (e.g., same sex marriage, gun control, abortion rights, among others). The main subjects covered by the search—as categorized by Factiva's 'story subjects'—are summarized in Figure 3. As expected, most of the news captured by the search relate to domestic politics, political general news, and elections.

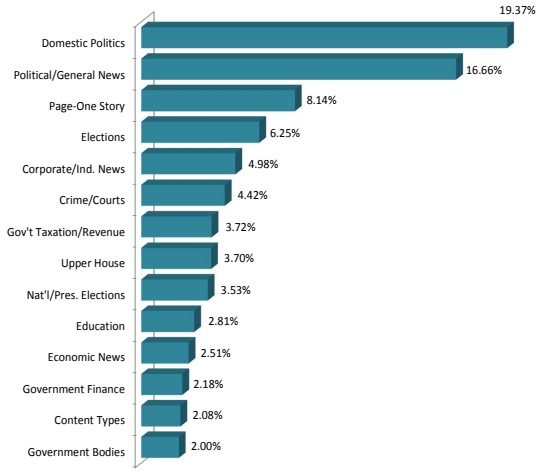


Figure 3: Percentage of news in which these subjects are mentioned.

A representative article that the search picks up can be seen in Appendix 5.4. The top 6 news sources are the Washington Post, the New York Times, Los Angeles Times, The Chicago Tribune, the Wall Street Journal, and the Boston Globe (see Figure 4 for a decomposition).

Because the volume of digitized news varies over time (due to the introduction of new sources to the dataset, as well as consolidation), I scale the raw partisan conflict count by the total number of

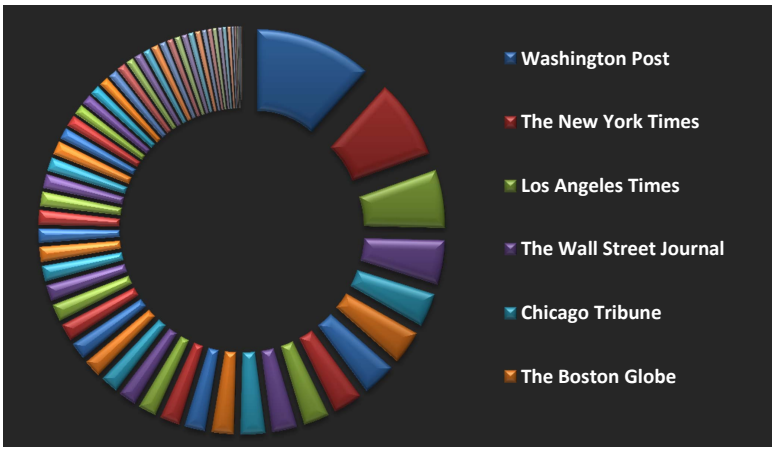


Figure 4: Percentage of news search in which these subjects are mentioned over the sample.

monthly articles in the same newspapers at each point in time. To do this, I perform a search every month from January 1981 to April 2013 using the same filters described above, but containing the word "today."[2] The evolution of each individual component, as a percentage of the total number of newspaper articles each month is depicted in Figure 2.1.

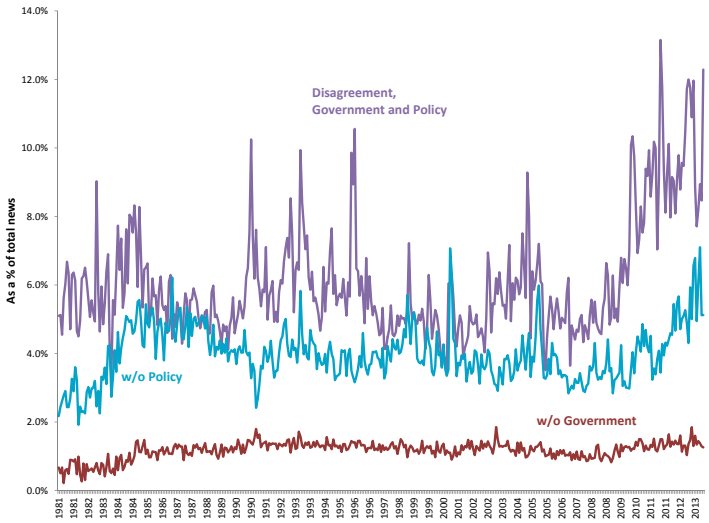


Figure 5: Evolution of the three components over time.

The first thing to note is that most articles are related to partisan conflict over economic policy (i.e. the intersection of the three categories). This can be seen from the fact that 'Disagreement, Government and Policy' lies above the other two lines in Figure 2.1, representing the largest share of news among the three components over the sample. Newspaper articles discussing non-policy issues (or issues not included in the list of economic policy topics, labeled 'w/o Policy' in the graph) follow

[2]Using the word "the" to count the total number of articles instead causes no noticeable difference in the index.

a similar pattern, but constitute a smaller proportion of monthly news coverage. Finally, articles discussing conflict over policy that do not mention a particular branch of the federal government (labeled 'w/o Government' in Figure 2.1), exhibit little variability and account for the smaller percentage of the three components. When reading a randomly selected sample of these articles, I observe that they mostly refer to disagreement about policy at the state and local levels.

The partisan conflict indicator is a weighted sum of the three components components, as illustrated in Figure 2.1. The weights are chosen such that the weight given to disagreement over economic and non-economic policy is the same. A smaller weight is attached to the third term, which does not involve words related to the government, because the series is noisy.

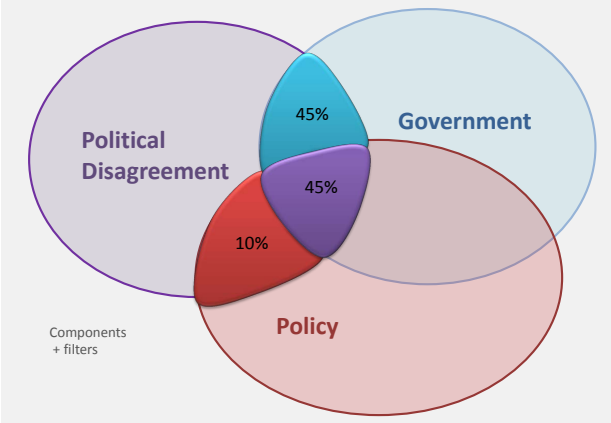


Figure 6: Weights

Finally, I normalize the PC scores to average 100 over the sample period 1981-2013. Figure 7 displays the evolution of partisan conflict over time (solid line). The circles indicate months associated with presidential elections (either when the election is held or the previous month), while the vertical bars represent those in which Congress held midterm elections.

2.2 The evolution of partisan conflict

What explains the evolution of partisan conflict? The analysis will be divided into two parts: (i) understanding short-term fluctuations and (ii) analyzing the long-run trend.

2.2.1 Short-term fluctuations

The most natural source of short-run fluctuations in the PC indicator is the arrival of election dates. We should expect the index to be higher than average in a window around elections for purely mechanical reasons: newspapers increase the proportion of articles covering political debates and emphasize differences between candidates at those periods. In addition, partisan conflict may also intensify endogenously, as legislators try to pursue a particular agenda or block specific legislation to tilt election results in their party's favor (see Gilmour 1995; Groseclose and McCarty 2001 on strategic disagreement). All agents in the political game (incumbent legislators, the opposition, the president, etc.) have incentives to exaggerate their positions to signal a particular type in an

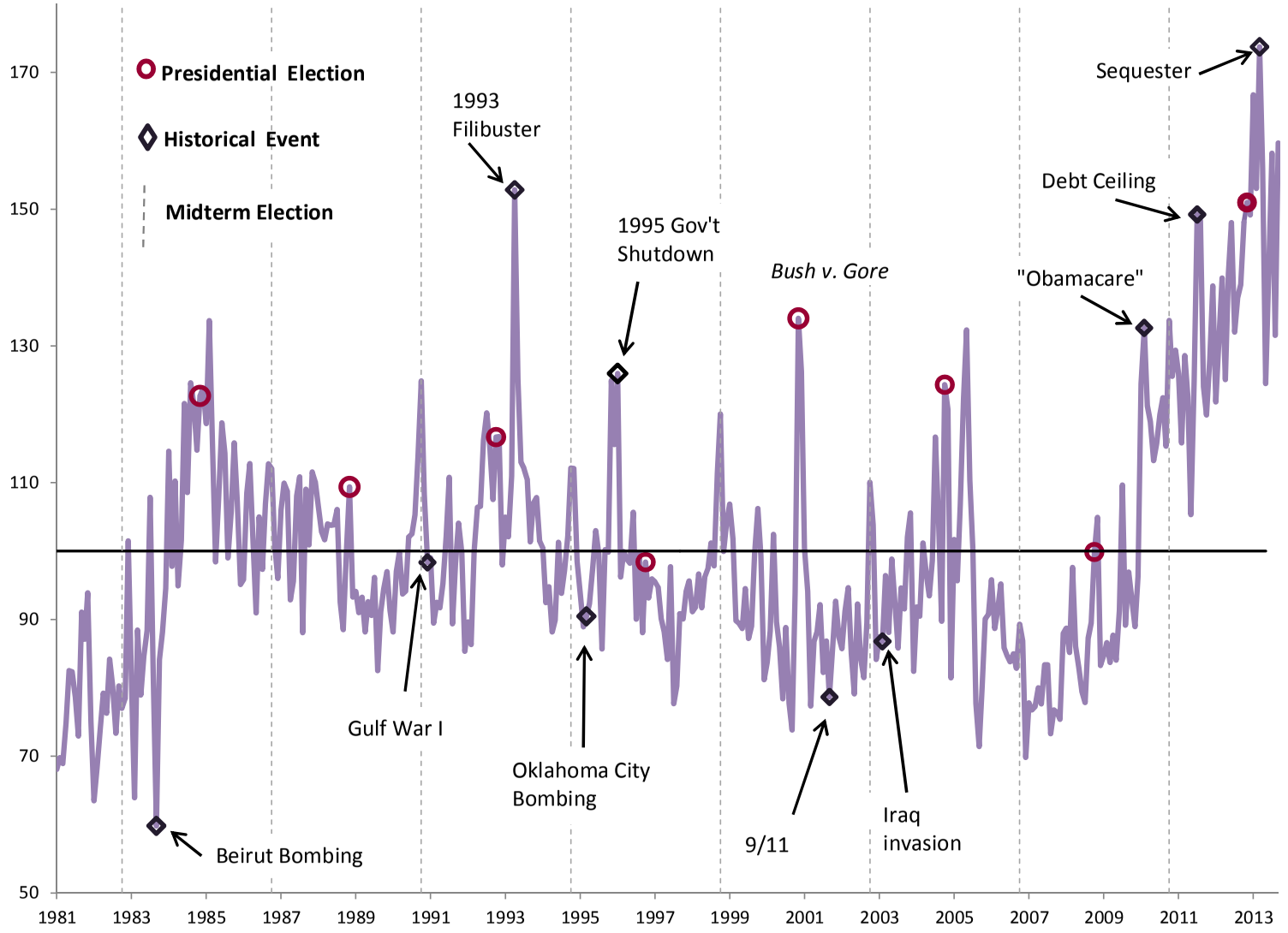


Figure 7: Partisan conflict, 1981-2013. Circles represent presidential elections (month of election or the month before); diamonds historical events and vertical lines are midterm elections.

attempt to attract votes. To test whether this is indeed the case, a two-sided t-test was performed with results summarized in Table 1.[3] The first row in the table displays the mean value of PC scores in off-election periods, while the second one shows its mean in election periods. An "election period" is defined by an indicator variable that takes a value of 1 in the month at which an election takes place or the month prior to an election, and zero otherwise. The rationale for including the month before an election takes place is that sometimes elections are held early in the month, implying that most of the news associated with the event are documented the month before. On average, partisan conflict scores are 17% higher in months where presidential elections are held, a statistically significant difference at the 1% level. PC scores are 6% higher in mid-term election periods than average, with the difference being significant only at the 10% level[4].

Table 1: Means test, H_o : Diff = 0 and H_a : Diff < 0

Category	*Midterm*	*Presidential*	*Obs*
Off-election	100	99	377
Election	106	116	16
Diff	-6	-17	
	$Pr(T < t) = 0.08$	$Pr(T < t) = 0.0012$	

Note: The first row displays the mean value of PC scores in off-election periods, while the second row shows this average in election periods (e.g. the month when an election takes place and the month prior to an election). "Mid-term' refers to Congressional elections, while "Presidential" refers to presidential elections. The number of observations is identical for each type of election during this time period, covering January 1981 to September 2013. The last row documents the p-value associated with a two-sided t-test (unequal variances) for each mean.

That PC scores are higher than average during elections should not be surprising. The value added of the estimate index is that it allows to compare the intensity of partisan conflict across elections. For example, the solid line in Figure 7 reveals that Bush/Kerry election was significantly more contentious than Clinton's reelection.

Another source of short-term fluctuations is given by the occurrence of polemic issues in the legislative agenda over which a decision must be taken. This feature was noted as early as 1902 by Laurence Lowell who stated *...the amount of party voting depends largely upon the accident of some question in which the parties are sharply divided happening to come up for decision...in England, parties frame the issues. In America the issues do not, indeed, make the parties, but determine the extent of their opposition to each other in matters of legislation.* At very short frequencies, the partisan conflict index will not only capture general ideological differences in the liberal-conservative spectrum, but also the degree of disagreement over particular topics. The government shutdown of 1995, the passage of "Obamacare," the debt ceiling debate, and the period surrounding the fiscal cliff—all marked with diamonds in the figure—are noticeable examples. These issues are not only

[3] ANOVA tests were also conducted for robustness and the findings are consistent with the results in this table.

[4] For robustness, I also computed the two-sided t-test for actual election months (that is, not including the previous month). I find that the difference between off-election months and election months is statistically significant for presidential elections, but insignificant for midterm elections.

divisive, but also important for individual decision-making, and thus receive extensive coverage in the news. Binder (1999) used news coverage of congressional bills to determine which bills where relevant (i.e. on important topics) in the construction of her gridlock measure. The PC scores automatically weight conflictive issues by their importance to the general public.

It is impossible, unfortunately, to disentangle at a particular point in time whether partisan conflict is high because parties are ideologically far apart on a particular issue, from the relevance of the issue per se. Polarization levels cannot, therefore, be inferred from PC levels at very short frequencies. The index can be a better indicator of polarization over longer time-spans (for example, biannually) where specific issues are 'averaged out.'

The state of the economy should also be a factor affecting the pattern of PC scores in the short run. For example, recessions are periods where automatic stabilizers (such as unemployment benefits) kick in. Several of these stabilizers are highly redistributive in nature, and thus potentially conflictive. We should expect partisan conflict to intensify in 'bad times,' where revenues tend to be low and spending needs large. The 2007 recession is an example, where the subsequent conflict over tax-cut expirations lead to gridlock, and hence extreme values in the PC index.

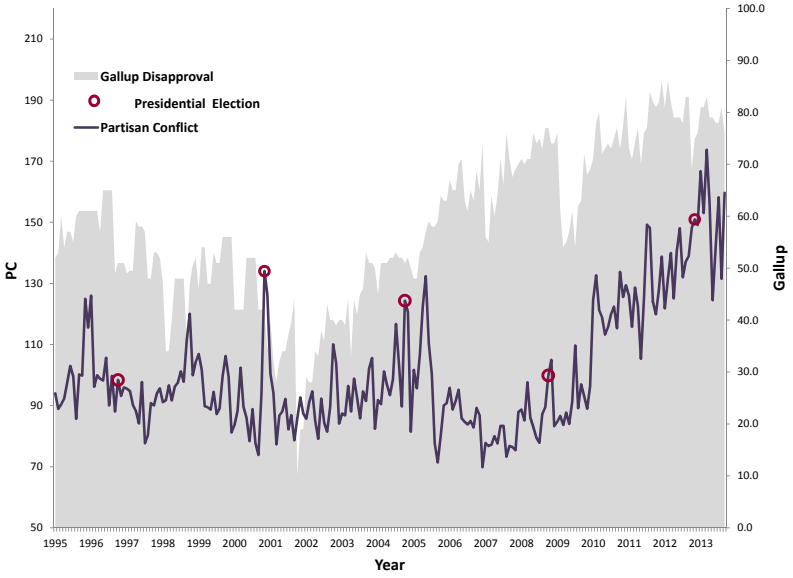


Figure 8: Partisan conflict and Congress disapproval ratings (Gallup).

Interestingly, lower-than-average PC scores are recorded during episodes related to national security. For example, PC is below average during both Gulf Wars, the Beirut and Oklahoma city bombings and, particularly, September 11th when it decreased dramatically from the spike associated with the Bush vs Gore election. It would be interesting to see the behavior of the index over a longer time-frame, in order to confirm whether this result is general. In principle, it indicates that parties disagree more about economic policy than over defense issues, particularly when national security threats are present. Suggestive evidence supporting this claim is given by disapproval ratings. Figure 8 depicts the PC index (left axis) together with the disapproval ratings (right axis), a series collected by Gallup in which respondents are asked "Do you approve or

disapprove of the way Congress is handling its job?" The shaded area represents the percentage of surveyed people that disapproves Congress' actions.[5] The low levels of PC observed during military conflicts or national security threats coincide with low disapproval rates, suggesting that partisan warfare was not present during those episodes.

The two series follow a similar pattern, exhibiting an upward trend towards the end of the sample, but behave differently in periods when presidential elections are held (displayed with circles). During those months, partisan conflict intensifies, while—as should be expected—the disapproval ratings remain fairly stable.

2.2.2 Long-run trend

Figure 7 indicates that partisan conflict has fluctuated around a constant mean for most of the sample, but exhibited an increasing trend starting at the outset of the Great Recession (e.g., around 2007). The index reached its highest levels of our 30-year sample period in 2012.

Polarization is possibly one of the most important factors (although not the only one) determining partisan conflict. We should expect partisan conflict to intensify when political polarization rises. Intuitively, it will be more difficult for parties to agree on the course of social and economic policy when their ideological differences are large. The increase in polarization between political parties in the US has been thoroughly documented by McCarty, Poole, and Rosenthal (2006). Its causes and consequences are summarized by Barber and McCarty (2013).

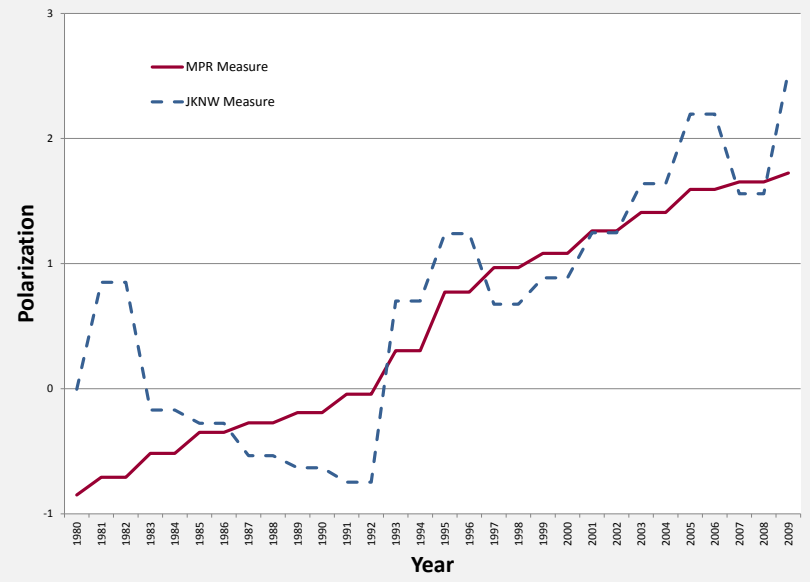


Figure 9: Polarization measures from Congressional records: MPR measure (solid line) and JKNW measure (dashed line), between 1980 and 2009.

Figure 9 shows the evolution of the polarization measure developed by McCarty, Poole, and Rosenthal (2006, MPR measure), who use information on roll-call votes in Congress to compute

[5]Data can be found at http://www.gallup.com/poll/1600/congress-public.aspx#1.

legislators' ideal points at each Congress.[6] Inspection of their series indicates increased partisan conflict, although their upward trend is continuous (while the PC shows a steep increase only in the more recent part of the sample). One potential reason is that MPR restricts attention to Congressional polarization. Partisan conflict is more broadly defined by also considering ideological divisions between the President and Congress, or between members of the same party. The emergence of the Tea Party as an important political actor affecting policy outcomes in the recent period is an exmaple. Finally, Jensen, Kaplan, Naidu, and Wilse-Samson (2012) statistically identify highly partisan phrases from the Congressional Records that are used to impute polarization in the Congressional political discourse. As seen in the dashed line of Figure 9, the JKNW measure of polarization declines during the 1980s, but shows an increasing trend in the 1990s. The trend seems to steepen at the end of the period, but their sample unfortunately ends in 2009 (before the PC reaches its peak).[7]

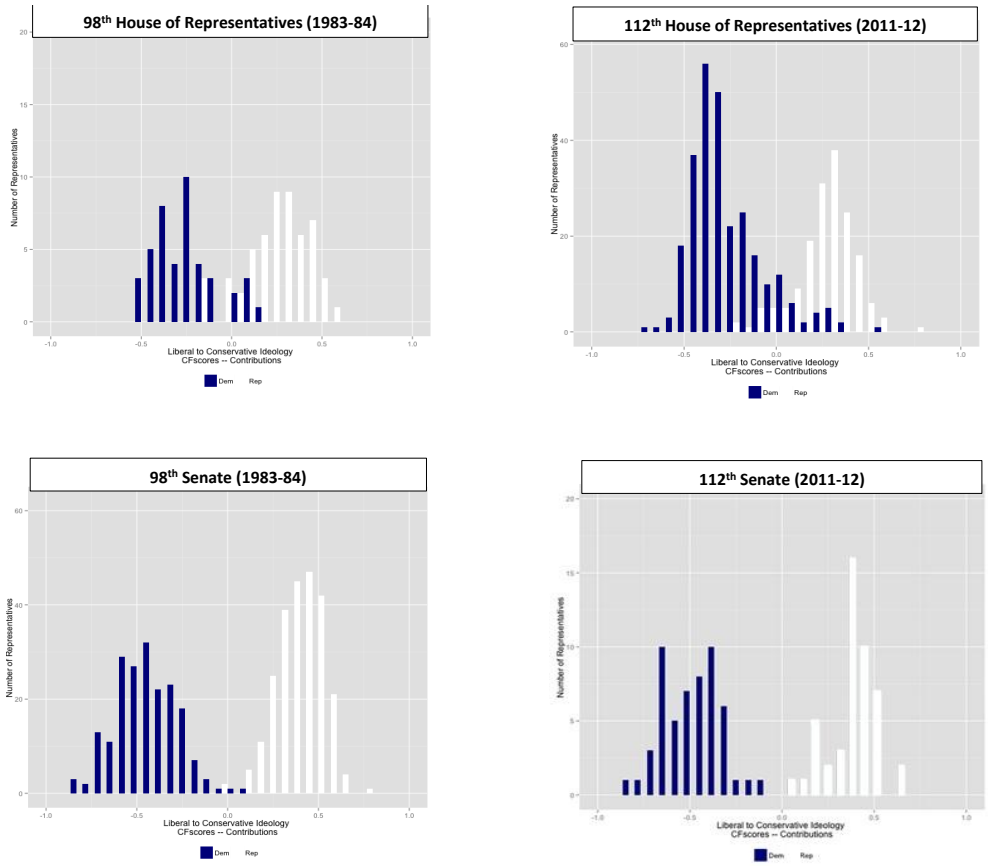


Figure 10: Legislators' ideology scores inferred from the patterns of contributions made by their supporters, constructed by Bonica and Rosenthal (2013b). The top panel shows the distribution of Republican and Democratic legislators' ideal points in the 98th (left) and 112th (right) House of Representatives, while the bottom panel shows the distribution in the 98th (left) and 112th (right) in the Senate.

[6]Data obtained from *http://voteview.com/downloads.asp.*

[7]Data obtained from *http://www.brookings.edu/about/projects/bpea/past-editions.*

Figure 10, constructed by Bonica and Rosenthal (2013b), shows the distribution of legislators' ideology scores inferred from the patterns of contributions made by their supporters. The top panel depicts the distribution of Republican and Democratic legislators' ideal points in the 98th (left) and 112th (right) House of Representatives, while the bottom panel shows the respective distributions in the Senate. In both houses, legislators' ideal points have become further apart. While there was some overlap between Republican and Democratic legislators' views in the 98th Congress (1983-84), these diverged dramatically in the 113th Congress (2011-12). This ideological division is captured by the increase in partisan conflict scores during the same period.

Increases in polarization are not the only reason for partisan conflict to rise. Even if polarization levels are low, we could observe stalemate or low legislative productivity when seats in Congress are evenly split between the two major parties, or when the executive power belongs to a different party from the one controlling both houses of Congress. A study by Edwards, Barrett, and Peake (1997) shows that presidents oppose significant legislation more often under a divided government. Moreover, they find that the odds that important legislation fails to pass under a divided government is considerably larger. A combination of these factors has been observed since 2007, where first, a Republican president faced a Democratic-controlled Congress and then, starting in 2011, where Congress has been divided between the two parties.

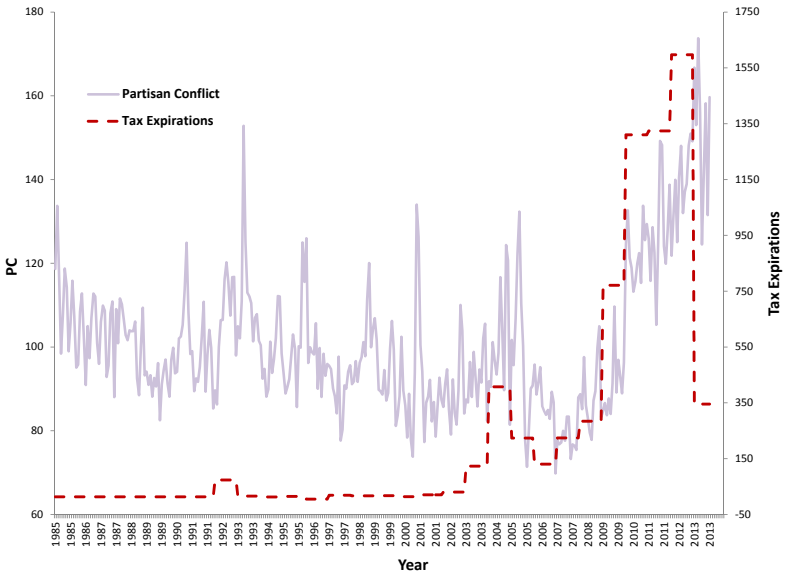


Figure 11: Partisan conflict and Tax Expirations.

The index's pattern is also highly influenced by the timing of tax-expirations. Figure 11 shows the PC scores together with a series of tax expirations obtained from Becker et al. (2013). We can see that partisan conflict intensifies when Congress is forced to make a dated decision affecting the federal budget, triggered by one of these expirations. The monthly correlation between the two series is 0.7. A higher-than-normal sequence of tax-expirations since 2007 could explain the increase in partisan conflict over the same period.

2.2.3 Partisan conflict and EPU

Even though the methodology used to compute PC is similar to the one followed by Becker et.al. (2013) to construct EPU, the two indexes capture different things.

One reason for this difference lies in the fact that while the EPU is affected by financial shocks (such as Lehman's collapse or the series of defaults in Latin American countries) and monetary policy (such as interest rate cuts by the Federal Reserve), PC scores are completely nonresponsive to these events. This is reasonable, as those events are unrelated to government policy but do introduce economic uncertainty about monetary policy. Figure 12, which depicts PC (solid line) together with the news-based EPU index (dashed line), illustrates this point. Another important difference results from the behavior of the two variables in the presence of military conflict: While the EPU exhibits large increases in times of war or national security threats (for example, 9/11 or the Gulf Wars), partisan conflict tends to remain relatively low or even decrease. Because of these factors, the correlation between partisan conflict and the news-based index of economic policy uncertainty developed by Becker et.al. (2013) is only 0.44.[8]

2.3 Robustness

In this subsection I analyze whether the benchmark PC is robust to expanding the set of keywords used in the search, and to seasonally adjusting the series by subtracting the average effects of elections.

Robustness to the set of words: Adding more specific terms related to fiscal policy or regulation did not change the index significantly. I considered the following additional terms as a robustness check: Tea Party, government spending, fiscal stimulus, government deficit, Medicare, Medicaid, health insurance, medical malpractice, medical reform, drug policy, Obamacare, deficit expenditures, 9/11, war, military conflict, military embargo, national security, military invasion, financial regulation, financial reform, bank supervision, bank regulation, Dodd-Frank, Glass-Steagall, collective bargaining, affirmative action, equal employment opportunity, closed shop, worker compensation, antitrust law, monopoly regulation, copyright regulation, patent regulation, environmental law, carbon tax, clean air act, clean water act, food stamp, disability insurance, tariff, import duty, import barrier, immigration.

I have also re-estimated the index using a different set of weights attached to the three components, and the main implications do not change.

Seasonally adjusted PC: The spikes in PC scores around election dates described at the beginning of this section could be due to two factors: (i) partisan conflict increases during elections or (ii) newspapers dedicate a larger share of coverage to discuss disagreement between candidates. To separate the first effect from the second one, I constructed a "seasonally adjusted" PC measure.

[8]This correlation is computed using only the news-based index of economic policy uncertainty and not the final EPU. The reason is that tax expirations account for about one-third of the EPU index, which I wanted to exclude to make the comparison. If I use the benchmark EPU measure, which includes tax expirations, the correlation between the two indexes is about 0.5.

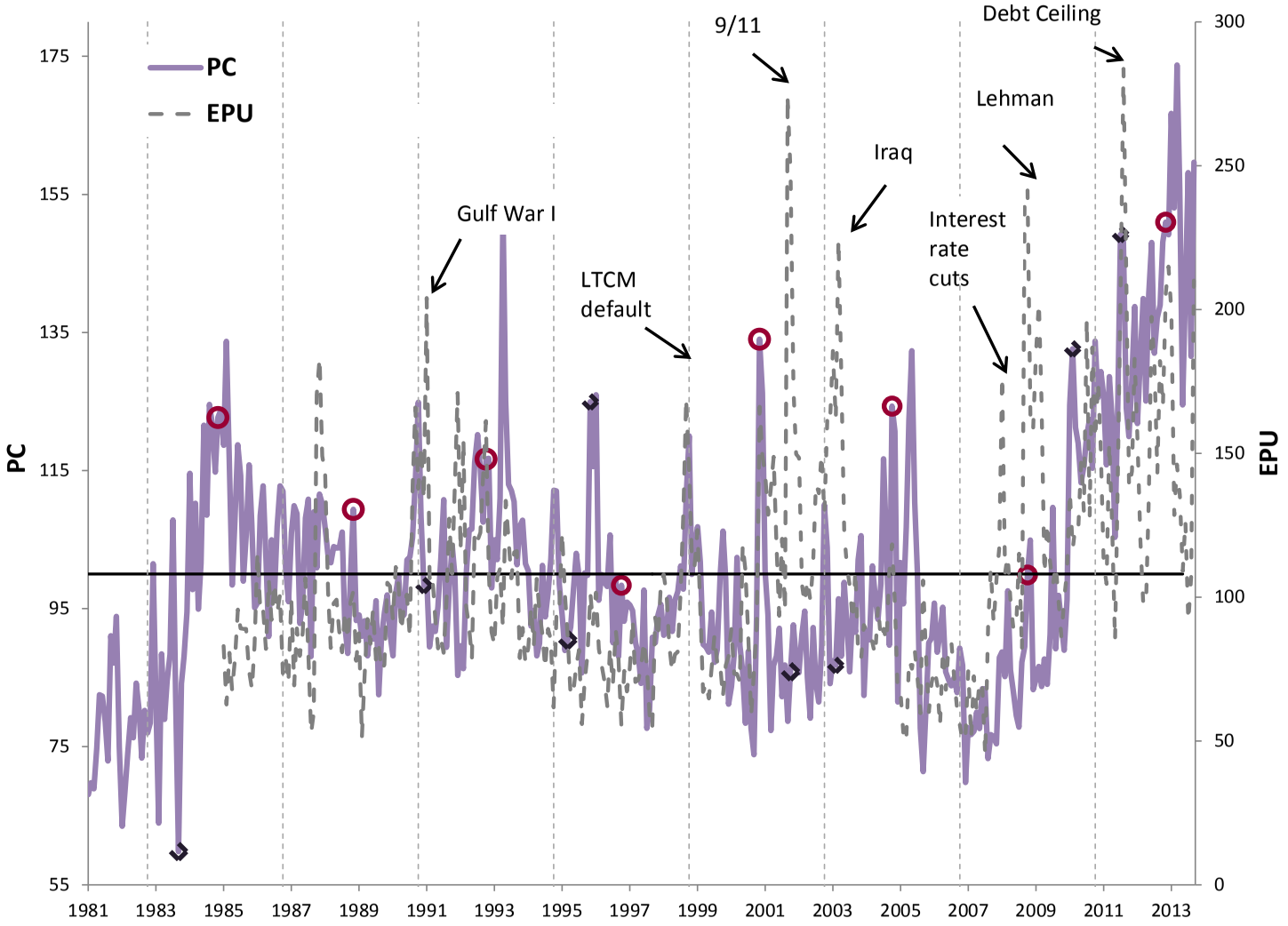


Figure 12: Partisan conflict (solid) and News-based economic policy uncertainty (dashed). Circles represent presidential elections (month of election or month before), diamonds historical events and vertical lines mid-term elections.

The raw measure of PC is regressed against a constant term and an indicator variable for each type of election (midterm and presidential),

$$PC_t = \alpha + \beta I_{M,t} + \gamma I_{P,t} + \epsilon,$$

where α is a constant, $I_M = 1$ if there is a midterm election and zero otherwise, and $I_P = 1$ if there is a presidential election; ϵ is an error term. The seasonally adjusted PC is constructed as

$$PC_{sa,t} = PC_t - \hat{\beta} I_{M,t} + \hat{\gamma} I_{P,t},$$

where the hats denote estimated coefficient values. In other words, we subtract the average increase in the PC during election dates from our benchmark measure. Comparison of the two series does not result in sizable differences and is therefore omitted (but available upon request). This indicates that the coverage effect is not the dominant force behind the rise of partisan conflict.

3 Consequences of partisan conflict on the economy

There exists a growing literature studying the effects of economic policy uncertainty on the aggregate economy (see for example Baker, Bloom, and Davis, 2013; Fernández-Villaverde and Rubio-Ramírez, 2010; or Fernández-Villaverde, Guerrón, Kuester, and Rubio-Ramírez, 2012). A common assumption is that fiscal policy follows an exogenous process whose volatility changes over time. In periods of high variability, economic agents delay hiring, investment, or production decisions, and this amplifies business cycles. Canes-Wrone and Park (2011) suggest that increases in fiscal uncertainty may be related to the behavior of rational agents over the electoral cycle. In particular, they argue that businesses and households have incentives to delay decisions that are subject to large reversibility costs right before elections, which are associated with high levels of economic policy uncertainty. This results in a pre-election decline in investment, a phenomenon that they refer to as "reverse electoral business cycle (REC)." In their model, uncertainty tends to be large when there is high electoral competitiveness and sufficient polarization between the major parties. Azzimonti and Talbert (2013) also propose a theory suggesting that political disagreement affects economic decisions and amplifies business cycles. They argue that economic fluctuations are caused not only by productivity shocks (as usually assumed in macroeconomics), but also by 'political shocks'. Using a standard partisan model of fiscal policy determination (a la Persson and Svensson, 1989) embedded in a neoclassical real business cycle model, they show that switches between left-wing and right-wing governments amplify the cycle. Moreover, they show that when party's ideological views become further apart, the volatility of fiscal and economic variables rises and long run output and investment decrease. In their model, partisan conflict increases the variability of the political shock inducing economic policy uncertainty.

In this section I explore empirically the effects of partisan conflict in economic behavior. In particular, I test whether the implications of the models discussed above hold for the US using the PC measure developed in this paper.

3.1 Economic variables

Economic variables are obtained at the quarterly level for the sample period 1981:q1 to 2012:q4 from the Bureau of Economic Analysis (BEA). Consumption, output, and investment are seasonally

adjusted and expressed in billions of 2005 dollars. They correspond to Personal Consumption Expenditures, Gross Domestic Product, and Gross Private Domestic Investment, respectively, and are converted in real terms using the GDP deflator. Employment is expressed in thousands of employees in the nonfarming sector (seasonally adjusted series). Interest rates are proxied by quarterly averages of the federal funds (effective) rate, obtained from the Federal Reserve Board. Finally, I compute the Solow residual to proxy the contribution of technological progress to output growth in our estimations. This residual is constructed as follows:

$$S_t = \ln(Y_t) - 0.36\ln(K_t) - 0.64\ln(L_t),$$

where Y_t denotes output, K_t is the stock of capital, and L_t is private industries' employment in period t. The Solow residual represents the amount of output produced net of expenditures in the main factors of production: capital and labor. Detrended measures of the Solow residual capture productivity shocks, which are attributed to be the main factor causing fluctuations in the economy (i.e., real business cycles) in the macroeconomics literature. In this paper, I want to distinguish political shocks from technological shocks and will thus use the Solow residual to control for the latter in the VAR estimations.

The specification above assumes a capital share of 0.36 and a labor share of 0.64, close to the long-run empirical averages of the capital and labor income shares. The series for capital is constructed using the perpetual inventory method:

$$K_{t+1} = I_t + (1-\delta)K_t,$$

where δ is a constant depreciation rate of capital (set to 0.012, implying an annual depreciation rate of about 5%) and I_t is real investment. The initial capital stock is chosen so that the capital-to-output ratio in the first period (1981:q1) equals the average capital-to-output ratio over our sample period 1981:q1 to 2012:q4,

$$\frac{K_{1981:q1}}{Y_{2012:q4}} = \frac{1}{131}\sum_{1981:q1}^{2012:q4}\frac{K_t}{Y_t}.$$

The resulting series is then used to compute the Solow residual.

3.2 VAR estimation

To test the impact of partisan conflict on aggregate economic variables, I estimate a Vector Auto Regression (VAR) model and recover orthogonal shocks by using a Cholesky decomposition of the following: partisan conflict the Solow residual, the federal funds rate (to control for interest rates), log employment, log investment, log consumption, and log GDP. In the baseline specification I use quarterly data with two-quarter lags, as suggested by both the Akaike Information Criterion test and the Bayesian (Schwartz) Information Criterion test. I check that the VAR is stable, so impulse-response functions can be constructed. The VAR methodology allows me to detect comovements between economic variables and partisan conflict. I cannot show causality using a Granger. This is to be expected, as it is likely that partisan conflict affects investment through the uncertainty channel. But it is also possible that low employment levels affect the degree of conflict across

parties. The results below should then be interpreted as 'informed correlations' between a set of variables, rather than by assuming that partisan conflict is exogenous to the rest of the economy.

The main experiment is to test the effects of a 52-point increase in the PC, equivalent to the rise in partisan conflict between 2006 and 2012.

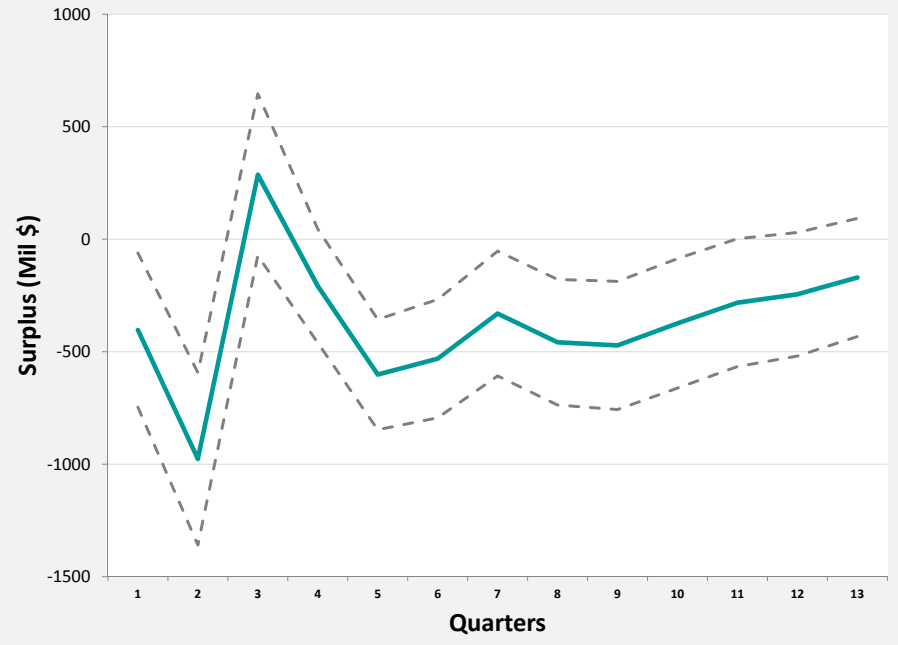


Figure 13: Impulse-response function of deficit to a 52 point-increase in PC, equivalent to the rise in the PC between 2006 and 2012. Solid line: mean estimate, dashed outer lines: one-standard-error bands. Estimated using a quarterly Cholesky VAR model with PC, the Solow residual, the FF rate, log employment, log investment, log consumption, and log GDP (in that order).

The immediate effect of an increase in PC scores is a $404 mil deficit. This is consistent with Alesina and Drazen's (1991) theory of delayed stabilization that predicts an increase in debt as a result of political inaction. The largest effect is observed in the second quarter after the shock hits, where deficits increase by $976 mil.

To the extent that partisan conflict introduces uncertainty about the economic policies, theories suggest that we should also observe a decline in investment upon impact. The top panel of Figure 14 indicates that private investment indeed declines following the rise in partisan conflict, with a peak impact of about 9.7% after five quarters. This decrease is persistent, with investment recovering only after 10 to 13 quarters. The negative response of output can be seen in the lower panel, which shows a decrease of more than 1% in aggregate production in response to the 52-point innovation in PC levels. The degree of persistence is lower than for investment, but it is still considerable. The response of private consumption (not shown) is negative, but statistically insignificant.

Figure 15 shows that this innovation causes private employment in the nonfarming sector to decrease significantly (solid line), with a peak response of 1.76 million jobs lost after six quarters. The dashed lines in the figure represent one-standard-deviation error bands and suggest that the decline in employment is statistically significant.

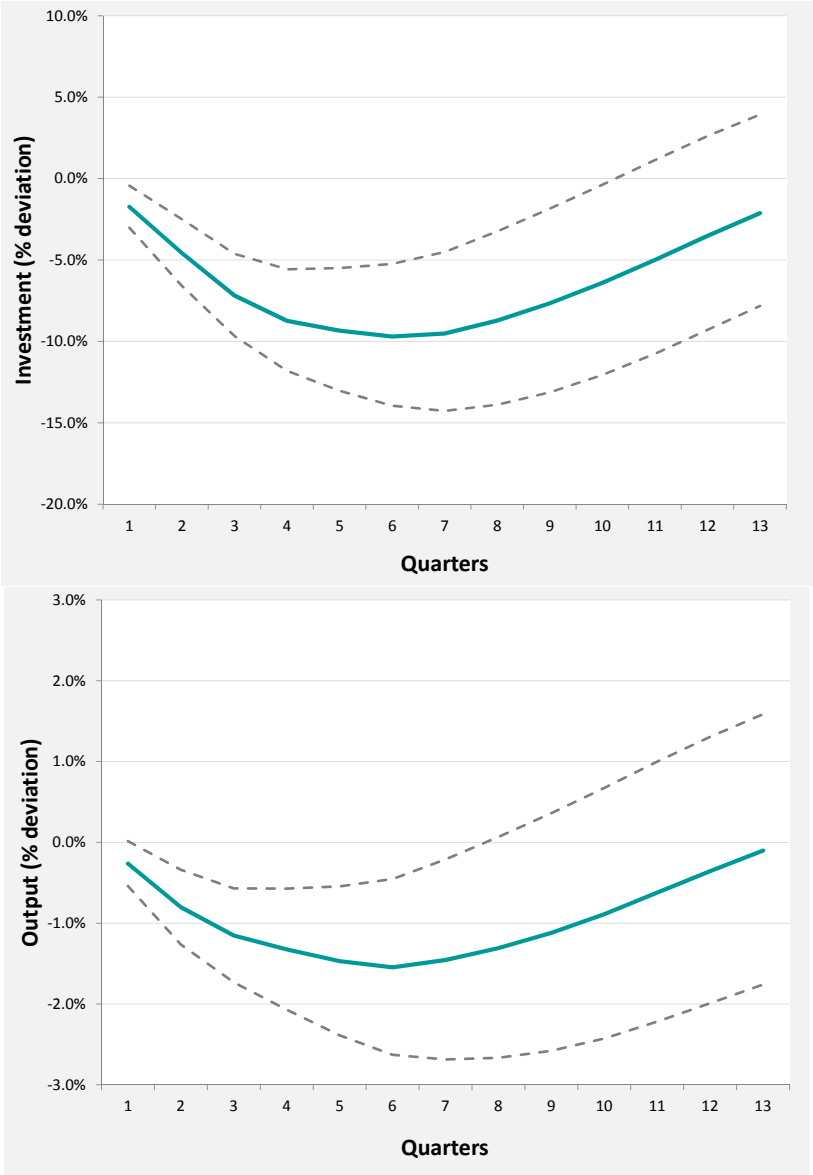


Figure 14: Impulse-response function of investment (top) and output (bottom) to a 52-point increase in partisan conflict (equivalent to the rise in the PC between 2006 and 2012). The central solid line is the mean estimate, while the dashed outer lines represent one-standard-error bands. These are estimated using a monthly Cholesky Vector Auto Regression (VAR) model with PC, the Solow residual, the FF rate, log employment, log investment, log consumption, and log GDP (in that order).

Robustness: These results are robust to the ordering of the Cholesky decomposition and to the inclusion of a time trend. Figure 16 shows how the mean estimate of the output response is affected by the number of lags used in the VAR estimation. The baseline case uses the optimal lag structure (two lags), while the other two lines represent one-lag (dashed) and three-lag (solid with

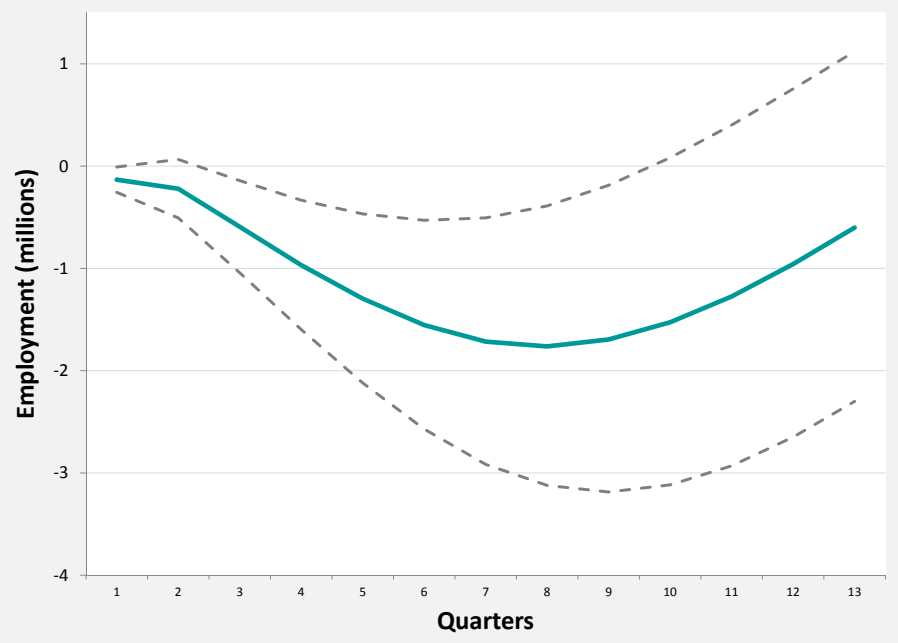


Figure 15: Impulse-response function of employment to a 52-point increase in partisan conflict (equivalent to the rise in the PC index between 2006 and 2012). The central solid line is the mean estimate, while the dashed outer lines represent one-standard-error bands. These are estimated using a monthly Cholesky Vector Auto Regression (VAR) model with the PC index, the Solow residual, the FF rate, log employment, log investment, log consumption, and log GDP (in that order).

circles) specifications. I have also recomputed the VAR using quarterly averages of the seasonally adjusted indicator of partisan conflict described in Section 2.2, but this does not change the results significantly, as seen from the fact that the response of output to PC_{sa} is basically identical to the response to the benchmark PC measure.

Finally, I have also recomputed the VAR including alternative EPU measures. In Model 2, I estimate a VAR and recover orthogonal shocks by using a Cholesky decomposition of the following: partisan conflict, EPU, the Solow residual, the federal funds rate (to control for interest rates), log employment, log investment, log consumption, and log GDP. The only difference relative to the benchmark model is the inclusion of the baseline measure of EPU computed by Baker, Bloom, and Davis (2013). The top panel of Figure 17 shows that the response of output (in % deviations) to a 52-point innovation to partisan conflict is lower in Model 2 (dashed line) than in our benchmark model (solid line). For reference, I also include the response to a 52-point increase in EPU (solid line with triangles), which is stronger and more persistent than the response of partisan conflict. Because the baseline EPU index in Baker, Bloom, and Davis (2013) includes tax expirations, which have been shown to be highly correlated with the PC, collinearity may arise if the two variables are included in the VAR. This is also suggested by the fact that the error bands become wider (not shown in the plot). In order to reduce multicollinearity, I have re-run the VAR using the news-based component of EPU computed by Baker, Bloom and Davis (2013), in Model 3. Recall that both indexes have been constructed following a similar methodology. As shown in Figure 12,

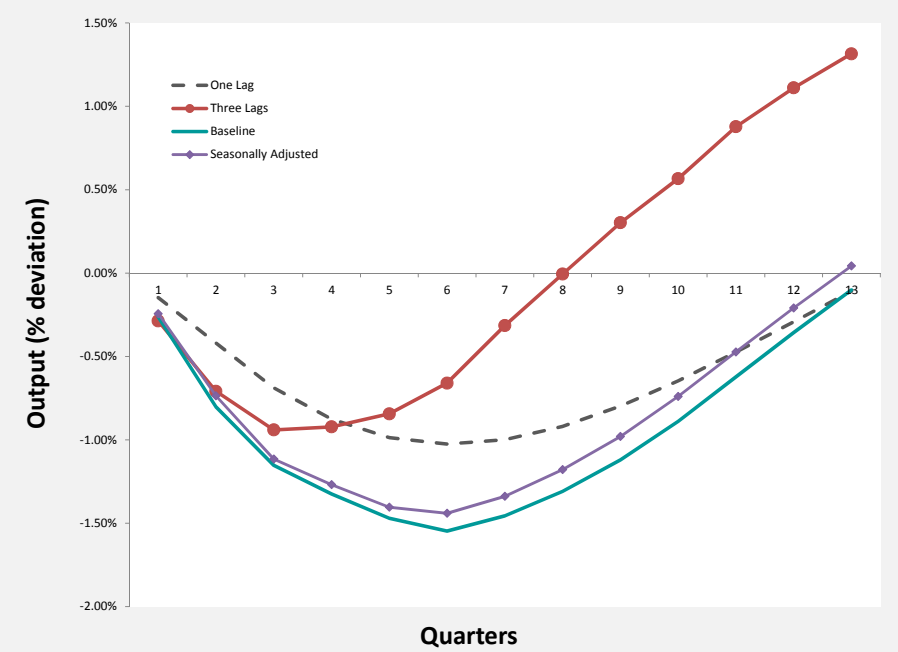


Figure 16: Impulse-response function of output to a 52 point-increase in PC, equivalent to the rise in partisan conflict between 2006 and 2012. Solid line: mean estimate, dashed outer lines: one-standard-error bands. Estimated using a quarterly Cholesky VAR model with PC, the Solow residual, the FF rate, log employment, log investment, log consumption, and log GDP (in that order). Also response of output to PC scores under one lag and three lags, as well as the response of output to PC_{sa} (under the Seasonally Adjusted label).

the PC and the news-based EPU indexes share some characteristics, but they have very different reactions to financial shocks (internal and external), as well as to military events. The bottom panel of Figure 17 shows the impulse-response function of output to partisan conflict (solid line) and to news-based EPU shocks (solid line with triangles). We can see that the response of output to a 52-point innovation in partisan conflict is stronger than that of the news-based EPU measure (to a same-size shock). They are both, however, somewhat weaker than the one presented in the benchmark case, where only partisan conflict is included.

This exercise suggests that partisan conflict negatively affects economic behavior. An increase in the PC similar to the one observed between 2006 and 2012 results in a reduction of output, employment, and investment. Because the estimation controls for TFP (through the Solow residual) the results suggest that political disagreement exacerbated the detrimental effects of the last recession in the US. These effects are shown to be persistent and significant, providing additional support for theories relating partisan conflict to business cycles.

4 Conclusion

Partisan conflict has increased substantially in the United States between the 1980s and today. Commentators and researchers suggest that the deep ideological division between the two main parties may have been an important factor affecting the aggregate economy, in particular by slowing the recovery from the 2007-09 recession. This paper investigates whether these claims are

supported by the data. Because testing the hypothesis requires partisan conflict to be measured at high frequencies, I first develop a novel index of partisan conflict based on news search. Using a simple VAR, I test how an innovation to the estimated index (similar in size to the one observed between 2007 and 2012) impacts employment, investment, and output. I find evidence that political disagreement does cause these variables to decline significantly and persistently. Intuitively, partisan conflict increases the volatility of fiscal policy, raising the degree of uncertainty faced by businesses and firms, which has been shown to negatively affect the economy.

In the future, I plan to study the effects of partisan conflict on the US budget cycle (following Alt and Lassen, 2006); in particular, whether taxes, spending, and deficits are sensitive to the degree of partisan conflict. I also plan to extend the coverage of the partisan conflict index to a larger set of countries. Analyzing whether PC tends to have larger effects in presidential than in parliamentary economies could be an interesting extension. A comparison between countries with different political accountability measures would help us further understand the impact of political uncertainty in the economy under different institutional environments, but that topic is also one for future research.

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5 Appendix

5.1 Sources

Table 2: Newspaper coverage in Factiva

News Source	*Start Date*	*News Source*	*Start Date*
The Arizona Republic	Jan-1999	The New York Times	Jun-1980
The Arkansas Democrat Gazette	Oct-1994	Newsday	Jul-1985
The Atlanta Journal Constitution	Jan-1986	The News-Gazette	Mar-2000
The Baltimore Sun	Sept-1990	The Oklahoman	Nov-1981
Boston Herald	Jul-1991	Omaha World-Herald	Aug-1983
Buffalo News	Feb-1992	The Orange County Register	Nov-1986
Charlotte Observer	Jan-1994	The Oregonian	Jul-1989
Chicago Sun-Times	Jul-1985	Orlando Sentinel	Oct-1987
Chicago Tribune	Jan-1985	The Philadelphia Inquirer	Oct-1994
The Christian Science Monitor	Sept-1988	Pittsburgh Post-Gazette	Jul-1990
The Cincinnati Enquirer	Jan-2002	The Plain Dealer	Mar-1989
The Columbus Dispatch	Dec-1991	The Sacramento Bee	Jan-2003
The Boston Globe	Jan-1987	San Antonio Express-News	Feb-1994
The Courier Journal	Jan-2002	The San Francisco Chronicle	Apr-2012
The Dallas Morning News	Aug-1984	San Jose Mercury News	Jan-1994
The Denver Post	Aug-1988	The Seattle Times	Dec-2008
Detroit Free Press	Jan-1994	South Florida Sun-Sentinel	Jan-1990
The Detroit News	Jan-2002	St. Louis Post-Dispatch	Jan-1992
The Fort Worth Star-Telegram	Jun-2001	St. Paul Pioneer Press	Jan-1994
The Hartford Courant	May-1991	The Star-Ledger	Jan-1991
Houston Chronicle	Apr-2012	Star-Tribune	Jan-1986
Indianapolis Star	Jan-2002	Tampa Bay Times	Nov-1986
Investor's Business Daily	Jan-2002	Tampa Tribune	Jul-2011
The Kansas City Star	Jan-1991	The Times-Picayune	Apr-1992
Los Angeles Times	Jan-1985	USA Today	Apr-1987
The Miami Herald	Oct-1994	U-T San Diego	Jan-2000
The Milwaukee Journal Sentinel	Jan-2000	The Wall Street Journal	Jun-1979
New York Daily News	Dec-1992	The Washington Post	Jan-1984
New York Post	Sept-1997	Washington Post.com	Oct-2007

Note: This table contains the names of the main US newspapers used in constructing the political polarization index (PC), together with the coverage start month in Factiva's database.

5.2 Filters

NADVTR	Advertorials	GLIFE	Lifestyle
NEDC	Commentary/opinion	GROYAL	Royal Family
NCOPRO	Country Profile	GCOM	Society/Community/Work
NEDI	Editorial	GWEA	Weather
NITV	Tv listings	NRGN	Routine general news
NLET	Letters	E52	Eurozone currency news
NOBT	Obituaries	GRAPE	Rape
NPEO	People profiles	GJURI	Juri
NPAN	Personal announcements	gdoga	Dog attacks
NRAN	Rankings	gdomv	Domestic violence
NRVW	Reviews	ghara	Harrassment
GSPO	Sports	gprob	Probation
GENT	Entertainment	gtrff	Traffic violations
GAWARD	Awards/Lotteries	gvand	Vandalism

5.3 Keywords

- **Polarization**: standstill, stalemate, gridlock, disagree, fail to (or cannot) compromise, deadlock, polarization, dysfunction, ideological differences, budget battle (or fight), filibuster, standoff.

- **Government**: White House, senate, Capitol, Congress, party, partisan, Republican, GOP, Democrat, political, legislator, legislative, lawmaker, president, federal government.

- **Policy**: tax (taxation, taxes, taxed), fiscal stimulus, health care, social security, prescription drugs, debt ceiling, Gramm-Rudman, minimum wage, Balanced budget, welfare, Medicare, Medicaid, part d, afforable care act, Obamacare, food stamps, AFDC, tanf, oasdi, earned income tax credit, EITC, public assistance, monopoly, patent, copyriright, federal trade commission, ftc, unfair business practice, cartel, competition law, price fixing, class action, carbon tax, cap and trade, drilling restrictions, pollution controls, environmental restrictions, clean air act, clean water act, dumping, trade policy, trade act, trade agreement, military invasion (or conflict), war, nutritional assistant program, head start program, entitlement program, wic program, government subsidies, deficit, budget, import tariff (or barrier, or duty), energy policy, Bank supervision, thrift supervision, national debt, federal debt, malpractice reform, constitutional reform, financial reform, medical insurance reform, Glass-Steagall, Dodd-Frank, collective bargaining, right to work, closed shop, worker compensation, affirmative action, overtime requirements, at-will employment, Davis-Bacon, equal employment opportunity, antitrust, eeo, osha, merger policy, competition policy, government policy, public policy, drug policy, immigration policy, government spending (or expenditures), defense spending (or expenditures), military spending (or expenditures), entitlement spending (or expenditures), unemployment insurance (or benefits), disability insurance (or benefits), health insurance (or benefits).

Finally, the search includes some specific terms: political division, political divide, partisan division, partisan divide, division in Congress, gridlock in Washington, divided American poli-

tics, division of ideology, ideological divisions, ideological differences among/between parties and variations of these.

5.4 A representative article

Tampa Bay Times

POLITIFACT
BUSINESS

SHUTDOWN CAUSED SOME CEOS TO DELAY HIRING FOR SIX MONTHS

JULIE KLIEGMAN

Times Staff Writer
473 words
27 October 2013
Tampa Bay Times
STPT
SOUTH PINELLAS
2D
English
Copyright 2013 Times Publishing Company. All Rights Reserved.

The statement

"Half of all CEOs say that the shutdown and the threat of shutdown set back their plans to hire over the next six months."

President Barack Obama, Oct. 17 in a public address

* * *

The ruling: MOSTLY TRUE

The White House pointed us to a recent Business Roundtable survey.

"Fifty percent of responding CEOs indicated that the ongoing **disagreement** in **Washington** over the 2014 budget and the **debt ceiling** is having a negative impact on their plans for hiring additional employees over the next six months," the report reads.

On its face, that's in line with what Obama said, but we wanted to see how Business Roundtable acquired its results. Their report notes, "Responses were received from 134 member CEOs, 63 percent of the total Business Roundtable membership."

Business Roundtable's membership tends to be larger companies. Spokeswoman Amanda DeBard told us CEOs are invited based on revenue, industry and market capitalization, so it's safe to say the poll responses don't reflect a random sample of U.S. businesses.

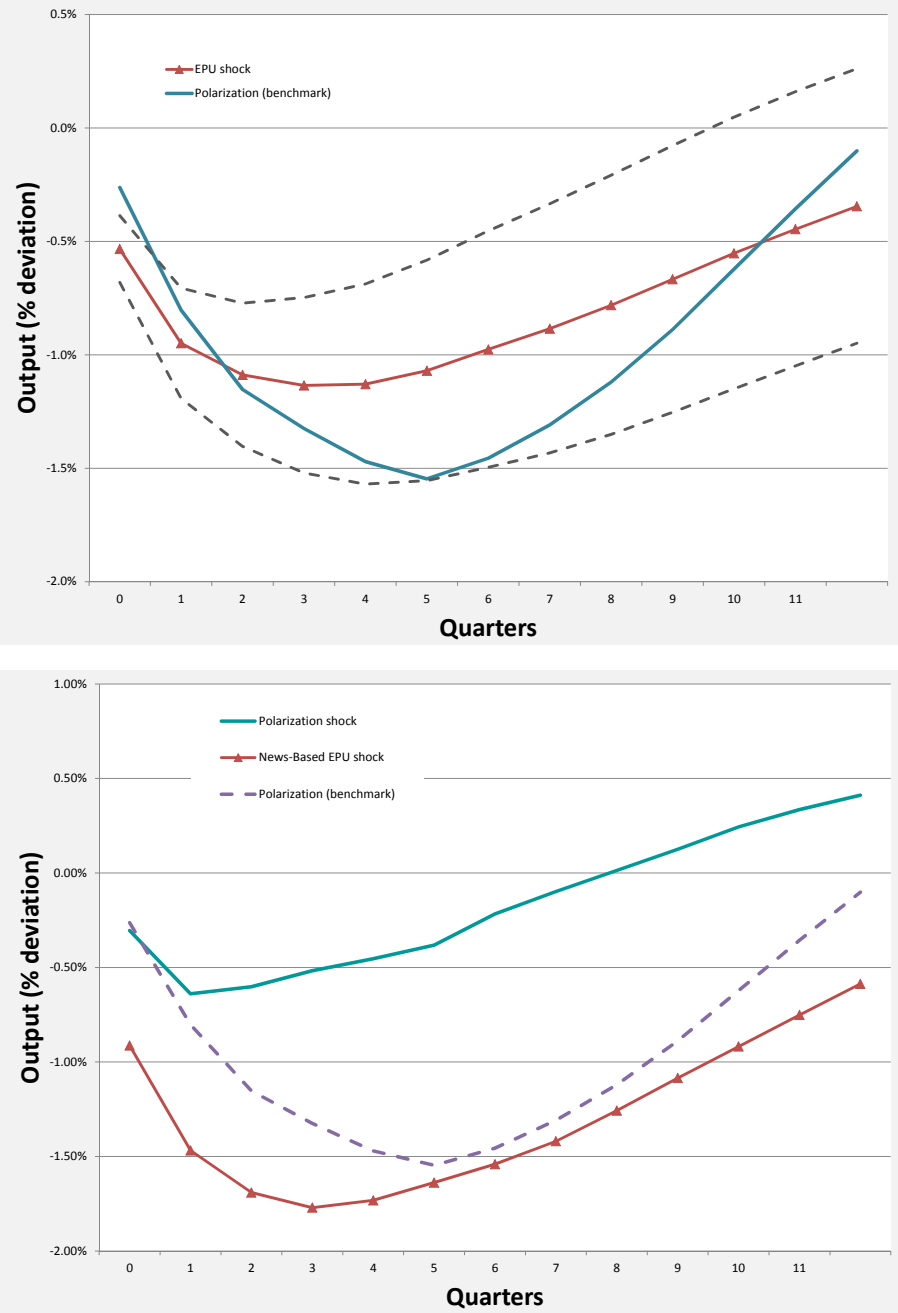


Figure 17: Impulse-response function of output to a 52-point increase in PC, equivalent to the rise in the partisan conflict between 2006 and 2012, for different specifications. The solid line is the mean estimate for the benchmark model (two lags), estimated using a monthly Cholesky Vector Auto Regression (VAR) model with PC, EPU, the Solow residual, the FF rate, log employment, log investment, log consumption, and log GDP (in that order). The figure also displays the response of output to PC scores under the benchmark model (which excludes EPU) and the response of output to a 52-point EPU shock. The top panel uses the baseline EPU measure, while the second one uses the News-Based Component measure.