

## How Does Political Pressure Impact the Efficacy of Monetary Policy in the US?

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# **How Does Political Pressure Impact the Efficacy of Monetary Policy in the US?**

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## **Abstract**

There has been a big push for more central bank independence in the last several decades. In my thesis, I examine whether monetary policy changes in response to political pressure. In particular, I derive a political pressure index on the Fed from conducting text mining on about nine decades of presidential speeches. I then examine the effect of political pressure on the Fed's reaction function to two key macroeconomic targets: inflation and unemployment rate. I find that the more the President talks about the Fed, the more the Fed deviates from targeting inflation to unemployment rate.

Keywords: Monetary Policy, Central Banks, Federal Reserve, US President, Central Bank Independence, Taylor Rule, Presidential Speech

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## 1. Introduction

Central Bank Independence (CBI) became a widely accepted tenet for effective policymaking about 30 years ago. However, CBI has been under attack in the United States in recent years. For example, On Aug 23, 2019, former US President Donald Trump wrote on Twitter, “My only question is, who is our bigger enemy, Jay Powell or Chairman Xi?” Trump’s blast came a day after the Fed lowered interest rates by 25 basis points to a target range of 1.5% to 1.75%.<sup>1</sup> How does the Fed’s reaction function depend upon the political pressure it faces? My thesis is concerned with the consequences of political intervention on the Fed, especially how monetary policy changes and what the implications are for achieving its macroeconomic objectives.

Scholars have established the benefits of central bank independence on achieving macroeconomic objectives internationally. Christopher Crowe and Ellen Meade argued in *Journal of Economic Perspectives* that greater central bank independence could help to provide policies necessary to achieve lower inflation. Similarly, Alesina and Summers concluded a near perfect correlation between high degrees of central independence and low levels of inflation in 13 countries.

As the gatekeeper of the U.S. economy, the Fed is charged with the dual mandate of promoting maximum employment and stable prices (with a third unspoken role in maintaining low long-term interest rates). However, the success of the federal reserve is largely intertwined with the interests of the political sphere — around the world, monetary policy is used by the government as the demand-side policy to achieve macroeconomic objectives like low inflation,

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<sup>1</sup>Breuninger, Kevin. n.d. “Trump Rails against Powell a Day after the Fed Cuts Rates for a Third Time This Year.” CNBC. Accessed December 10, 2022. <https://www.cnbc.com/2019/10/31/trump-rails-against-powell-day-after-fed-cuts-rates-for-a-third-time-this-year.html>.

high consumption, robust economic growth, and sufficient liquidity in the banking system.<sup>2</sup> In the United States, politicians oftentimes have a very different agenda from the Federal Reserve. Politicians, especially those from labor-intensive areas where jobs are the top concern on voters' minds, tend to prioritize protecting jobs over other economic objectives. This dichotomy puts the Fed's independence at risk when political pressure is high on the Fed.

Previous scholars constructed an index of central bank independence through measuring how easy it is for the government to finance its deficits by direct access to credit from the central bank as well as the degree of institutional changes. My biggest contribution is using presidential pressure to reflect the political pressure exerted on the Fed and constructing a political pressure time series index from text mining in presidential speeches. I conclude that monetary policy under high political pressure tends to focus more on targeting the unemployment rate and less on inflation, potentially leading to higher inflation in the long run.

## **2. Literature Review**

### **2.1 History of the Central Bank Independence**

#### A Political Inception of the Fed

Today there is a consensus that a central bank should remain independent from political forces. However, the Fed was subject to a tremendous level of political pressure at its inception. When the Federal Reserve System was first created in 1913, the original concept was meant to continue the spirit of the "independent treasury system" that existed in the pre-Fed era. For most of the first four decades of its existence, however, the Federal Reserve was characteristic of lacking independence. The 1913 act that created the Fed made the Treasury secretary and the

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<sup>2</sup> "What Is Monetary Policy? Definition of Monetary Policy, Monetary Policy Meaning." n.d. The Economic Times. Accessed December 10, 2022. <https://economictimes.indiatimes.com/definition/monetary-policy>.

Comptroller of the Currency *ex officio* members of the Board of Governors. The Treasury secretary presided over all meetings in those early days.<sup>3</sup> For example, William G. McAdoo was Treasury secretary as well as *ex officio* chairman of the Federal Reserve Board in 1913. As Treasury secretary, McAdoo was tasked with financing the country's wartime budget at the outbreak of World War I. When conflicts between the Fed and the Treasury arose, McAdoo sided firmly with the Treasury, threatening to use his legal authority as Treasury secretary to overrule the Reserve Banks when they objected to the low interest rates paid on Treasury securities.<sup>4</sup>

### The Fed as a Political Means to Finance the Wars

Throughout the Fed's history, its struggle for independence has reached peak during wartime. When the United States entered World War I in April 1917, the Federal Reserve almost instantly became the primary vehicle for financing the war effort. The Fed lent money at a discount rate to banks for them to purchase "Liberty Loans" bonds from the US Treasury. After World War I, the Federal Reserve Bank of New York remained the official fiscal agent of the U.S. Treasury Department. Political forces continued to retain the upper hand in the economic upheaval of the Great Depression. As economist Allan Meltzer points out in his history of the Fed, monetary policy would basically be dictated by Congress and the White House between 1933 and 1951. For instance, after Franklin Roosevelt became president in 1933, he assumed emergency powers that took the United States off the gold standard. The Fed was mandated by Congress to issue "reserve notes" not backed by gold and to freeze its asset portfolio. The monetary base was effectively determined by the Treasury.

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<sup>3</sup> "The Evolution of Fed Independence - Richmond Fed," accessed March 29, 2023, [https://www.richmondfed.org/-/media/richmondfedorg/publications/research/econ\\_focus/2009/fall/pdf/federal\\_reserve.pdf](https://www.richmondfed.org/-/media/richmondfedorg/publications/research/econ_focus/2009/fall/pdf/federal_reserve.pdf).

<sup>4</sup> "William G. McAdoo," Federal Reserve History, accessed March 29, 2023, <https://www.federalreservehistory.org/people/william-g-mcadoo>.

When the US entered World War II, political instability obstructed central bank independence once again. The Fed became again a mechanism by which the government could more cheaply finance the war effort. In April 1942, the Fed announced a policy of cooperating with the Treasury to keep interest rates low. It committed to maintaining a low interest-rate peg of  $\frac{3}{8}$  percent on short-term Treasury bills by buying large amounts of government securities. The Fed also implicitly capped the rate on long-term Treasury bonds at 2.5 percent. To maintain the Peg, the Fed was forced to give up control of the size of its portfolio as well as the money stock.<sup>5</sup>

A similar historical event where political agenda was prohibiting central bank independence was the Korean war which began on June 26, 1950. Treasury Secretary John Snyder made obvious of his department's commitment to keeping the Fed of maintaining the bond price peg to finance the war. Concerned more about rising inflation, the Fed policymakers had a different agenda in mind from the Treasury and they were eager to raise the short-term interest rate. At the August 1950 FOMC meeting, the FOMC decided to challenge Treasury Secretary Snyder's unwillingness to allow rate rises. At that meeting, New York governor Allan Sproul argued that "this time I think we should act on the basis of our unwillingness to continue to supply reserves to the market by supporting the existing rate structure and should advise the Treasury that this is what we intend to do — not seek instructions." Essentially, Sproul believed in the Fed's power to control bank reserves and let the market force determine the interest rate. Eccles agreed and said that if the Fed is "expected to survive as an agency with any independence whatsoever [it] should exercise some independence."<sup>6</sup> Ultimately, the members of the Board of Governors decided to approve the recommendation of the New York Fed to increase

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<sup>5</sup> Jessie Romero, "The Treasury-Fed Accord," Federal Reserve History, accessed March 30, 2023, <https://www.federalreservehistory.org/essays/treasury-fed-accord#:~:text=In%20April%201942%2C%20at%20the,Treasury%20bonds%20at%202.5%20percent.>

<sup>6</sup> "The Treasury-Fedaccord: Anew Narrativeaccount - Richmondfed.org," accessed March 30, 2023, [https://www.richmondfed.org/-/media/richmondfedorg/publications/research/economic\\_quarterly/2001/winter/pdf/hetzel.pdf](https://www.richmondfed.org/-/media/richmondfedorg/publications/research/economic_quarterly/2001/winter/pdf/hetzel.pdf).

the discount rate from 1.5 to 1.75 percent. The Fed prevailed in its battle to end the interest rate peg. Fed critics in that time claimed that the Fed had taken over management of the federal debt in this section, we see a conflict between the political agenda and the Fed's agenda on maintaining price stability. In the next section, I will dive into an assessment of the impact of political pressure on the Fed's reaction function. Namely, does the Fed deviate between its two targets?

### The Treasury-Fed Accord

In March 1951, the US Treasury and the Federal Reserve reached an agreement to separate government debt management from monetary policy, laying the foundation for the modern Fed. This historical milestone of the Fed's independence is achieved through persistent efforts by the Fed board of governors. The low interest rate during the wartime was one of many important factors that caused high inflation. In 1947, inflation surged to over 20 percent.<sup>7</sup> Worried about inflation, Fed chairman Eccles began to argue strongly against the "peg", the rule by which the Fed would buy up those Treasury securities if prices fell to keep the rates low. President Truman, however, did not appreciate Eccles' notion of Fed independence and told Eccles explicitly that he would not be reappointed when his term was over in 1948. Yet many policymakers within the Fed, particularly New York's Sproul, had similar concerns as Eccles on the loss of Fed independence. For the years from 1948 to 1950, the Fed and the Treasury continued to cooperate but in a rather tense way. While the "peg" remained intact, the stage was slowly transitioning to a slowdown. The conflict on the "peg" came to a hard end when President Truman invited the entire FOMC to a meeting at the White House. Eccles decided to release the

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<sup>7</sup> "Historical Parallels to Today's Inflationary Episode," The White House (The United States Government, November 30, 2021), <https://www.whitehouse.gov/cea/written-materials/2021/07/06/historical-parallels-to-todays-inflationary-episode/#:~:text=%5B1%5D%20Prices%20also%20surged%20after,%2C%20and%20pent%20Dup%20demand>.



FOMC's own account of the meeting with the president which openly stated that the FOMC had made no such pledge as to maintain the stability of the Government securities. On March 4, 1951, the Treasury-Fed Accord was reached.

When tracing the origin of the concept of Central bank independence, it had not been brought to the public attention until the 1960s. In the book *A Monetary and Fiscal History of the United States 1961 - 2021*, Alan Blinder emphasizes that the discussion on central bank independence did not become salient until the 1970s. Looking at the Fed history of obtaining independence, it appears that the Fed's independence is jeopardized when the political agenda like wartime effort takes precedence over the Fed's objectives.

### 2.3 Presidential Pressure on Monetary Policy in Action

Presidents are interested in monetary policy because of the link between macroeconomic performance and electoral success. Since presidents are more likely than other actors to be able to define their objectives for monetary policy precisely, they may be more likely than others to be effective in pressuring the Federal Reserve. Scholar John Wooley from Washington University argues that in periods prior to elections, the usual expectation is that presidents will seek expansionary policy.

Shortly after appointing Volcker, the Carter White House refrained carefully from any comment on monetary policy in order to avoid arousing the markets. CEA Chairman Gardner Ackley was sending reports to the president, including one that “on several occasions Bill [Fed Chairman William Martin] has persuaded the Open Market Committee to go along with something ‘because the President wanted it.’”<sup>8</sup>

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<sup>8</sup> Woolley, John T. 1984. *Monetary Politics: The Federal Reserve and the Politics of Monetary Policy*. Cambridge: Cambridge University Press. <https://doi.org/10.1017/CBO9780511571510>.

As John Woolley asserts, “The notion that such an important institution [the Fed] could not be involved in politics is simply a delusion.”<sup>9</sup> In reality, the Fed has always played an instrumental role in achieving presidential agendas. In this section, I will illustrate scenarios where the presidential political agenda exerted pressure on the Fed to comply. The three presidents and their Fed chairs in their presidential terms I will analyze are Nixon and Arthur Burns, Carter and Volcker, as well as Trump and Powell. As I will go into depth below, the short-term political agenda is often achieved at the higher cost of long-run remedy to the macroeconomy. The historical lesson is that the Fed should never surrender its independence to short-term political agenda.

### Nixon and Burns

In his book *A Monetary and Fiscal History of the United States 1961 - 2021*, scholar Alan Blinder critiqued president Richard Nixon and Arthur Burns working together to use expansionary monetary and fiscal policy for political ends. According to Blinder, previous Fed chair Arthur Burns’ legacies are twofold: his failure to control inflation in the 1970s and his willingness to surrender the central bank’s independence to Nixon. Blinder argues in chapter 4 of his book that president Nixon was responsible for engineering what’s called a “political business cycle”, where expansionary monetary and fiscal policies were employed right before the reelection cycle to gain the voters’ favor. This political agenda has a detrimental cost — leaving a long legacy of high inflationary periods to come after the reelection cycle is over. When Nixon assumed the presidency in January 1969, both fiscal and monetary policy were in the later stages of the anti-inflation policy that president Johnson had begun in 1968. The federal funds rate

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<sup>9</sup> Smith, Daniel J. and Peter J. Boettke. "An Episodic History of Modern Fed Independence." *The Independent Review* 20, no. 1 (Summer, 2015): 99-120.  
<http://proxy.library.nd.edu/login?url=https://www-proquest-com.proxy.library.nd.edu/scholarly-journals/episodic-history-modern-fed-independence/docview/1690474125/se-2>.

moved up from 6 percent when Nixon was elected to about 9 percent in May 1969.

Unsurprisingly, a short and shallow recession began in December 1969 and ended in November 1970. Many may argue that this was a sticky situation for President Nixon to handle, Blinder, however, says that “it’s an extremely good bet that he will enjoy an expanding economy throughout his reelection campaign.”<sup>10</sup> It seems that was exactly what Nixon did. Leading up to the reelection in 1972, Arthur Burns pushed monetary policy hard in the stimulative direction. By January 1972 the federal funds rate, which had peaked above 9 percent in 1969, was down to 3.5%.

While Nixon boosted GDP growth with fiscal and monetary stimulus in the 1972 election year, the inflationary spiral continued and he had to tie the loose end. In August 1971, Nixon announced comprehensive wage-price controls, beginning with a startling 90-day freeze on most wages and prices. The price controls worked politically for Nixon, dropping inflation rate from 4.4 percent in August 1971 to 2.9 percent a year later. This short-term gain did not prevent Blinder from identifying the long-run cost. Alan Blinder and William Newton constructed a time series to estimate the effects of wage-price control on core CPI inflation. According to the model, while the controls reduced the price level by about 3 percent between 1971 and 1974, the post controls bounce-back erased this effect entirely by October 1974. This notorious political manipulation of the economy was so extreme that, according to Blinder, no American president since Nixon has ever flirted with wage-price controls.

### Carter and Volcker

President Carter’s path with monetary policy taught his successors that inflation fighting inevitably gets in the way with reelections. According to scholar Eizenstat, “the blunt instrument

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<sup>10</sup> Alan S. Blinder, *A Monetary and Fiscal History of the United States, 1961-2021* (Princeton: Princeton University Press, 2022), 62.

of tight money and high interest rates ultimately squeezed inflation out of the economy at the cost of high unemployment and helped squeeze him [Carter] out of a second term.” In stark contrast to Nixon’s perfect timing of expansionary fiscal and monetary right before his reelection cycle, president Carter was much more unfortunate with excruciatingly tight monetary policy. By the summer of 1979, Carter perceived inflation reduction as both a political and an economic imperative. He had famously labeled the energy crisis — one major source of the high inflation— “the moral equivalent of war.”<sup>11</sup> Carter’s appointed Paul Volcker, the famous inflation hawk, to be the Fed chair in 1979. An example of Carter exerting political pressure on the Fed was imposing credit controls. While the Fed saw credit controls as “a transparently political ploy”, the American public that was sick and tired of high inflation resonated strongly with credit control. Despite the Fed’s resistance, president Carter exercised authority left over from Nixon years and pressured the Fed into imposing credit controls. Consumer spending crumbled, dropping at an incredible 8.7 percent annual rate, taking GDP growth down with it. Credit controls, which are not part of the conventional monetary toolbox, caused a short but deep recession in 1980.

Contrasting with President Nixon’s political agenda of bringing up job numbers, Carter’s agenda focuses on bringing down inflation. While he is accredited for appointing a strong-willed hawkish Fed chair, Carter’s intervention on credit controls taught us the importance of central bank independence.

### Reaganomics and its clash with monetary policy

Following Volcker’s tight monetary policy, President Reagan took office with a severe recession likely in the cards. As a result, Reagan implemented loose fiscal policy through

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<sup>11</sup> Alan S. Blinder, *A Monetary and Fiscal History of the United States, 1961-2021* (Princeton: Princeton University Press, 2022), 120.

increased military spending and cutting taxes, in the hopes to head off the recession on the rise. The tax cuts ballooned the deficit while the military spending offset most of the civilian cuts, increasing the deficits to unprecedented levels since World War II. Blinder points out in chapter 8 that between fighting slumps and limiting booms, President Reagan left the harder task of limiting booms to the Federal Reserve. He explains that “it is easy, politically, to cut taxes or raise spending... but it is difficult, politically, to raise taxes or cut spending. Thus, while expansionary fiscal policy may be useful in fighting slumps, contractionary fiscal policy will probably not be deployed to limit booms.”<sup>12</sup>

Reagan’s era demonstrated that political pressure isn’t always necessarily expressed in explicit languages. Due to the intricate relationship between monetary and fiscal policies to maintain economic stability, political interests could get in way with performing monetary policy at a necessary scale. This example tells us that central bank independence is much easier said than done — after all, if one party promotes tax cuts regardless of the macroeconomic situation, “the job of stabilization policy was essentially delegated to monetary policy.”<sup>13</sup>

There is no simple, ready method of determining the degree of agreement or disagreement between the Federal Reserve and the president. There is no regularly available source in which to find administration statements of preferences about monetary policy that can be regarded as either clear or independent. The CEA analysis of monetary policy in the Economic Report of the President is one source of statements that could be compared to subsequent policy performance. However, there are two issues with this source that makes it impossible to extrapolate the presidential preferences on monetary policy. First, CEA statements are vague, especially regarding their expectations for monetary policy, and criticism is usually so

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<sup>12</sup> Alan S. Blinder, *A Monetary and Fiscal History of the United States, 1961-2021* (Princeton: Princeton University Press, 2022), 141.

<sup>13</sup> I.d. 151.

veiled as to be invisible. Second, CEA statements about monetary policy are often negotiated with the Federal Reserve in advance; thus, they are not independent measures of preferences.

The Federal Reserve is typically faster to switch to a restrictive policy and slower to move to an expansionary policy than the president. The most important open conflicts have usually been about the timing of changes in policy direction. More frequently, there are tensions related to the degree of stimulus or restraint.<sup>14</sup>

## 2.4 Consequences of Political Intervention on Monetary Policy Objectives

In this section, I give some empirical examples of why political intervention undermines the independence of the Fed and thus, the efficacy of monetary policy in achieving the macroeconomic objectives.

Many scholars have examined the effect of political pressure on boosting the economy and reducing unemployment, specifically in relation to the independence of central banks. Christopher Crowe and Ellen Meade argued in *Journal of Economic Perspectives* that greater

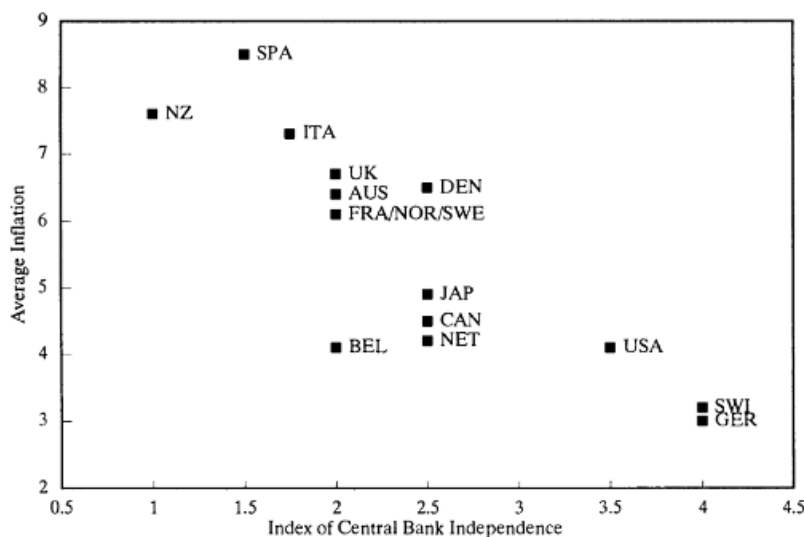


FIG. 1a. Average Inflation

<sup>14</sup> John T. Woolley, *Monetary Politics: The Federal Reserve and the Politics of Monetary Policy* (Cambridge: Cambridge University Press, 1985).

central bank independence could help to provide policies necessary to achieve lower inflation<sup>15</sup>. Similarly, Alesina and Summers argued in *Journal of Money, Credit, and Banking* that there is a near perfect correlation between inflation and central bank independence based on samples of 13 countries. Figure 1a is the graphical representation on the relation between central bank independence and average inflation is shown from Alesina & Summers. While research has been done to measure the independence and degree of political insulation of central banks around the world, there seems to be a gap in quantifying the political pressure exerted on central banks externally.<sup>16</sup>

My thesis fills in the gap by generating a political pressure index where 1 refers to a high political pressure environment and 0 refers to a low to medium level of political pressure in the United States. Specifically, I use presidential speeches in the United States as a proxy for political pressure where I count the number of times words thematic to the concepts of “monetary policy” and “federal reserve” are mentioned. This bottom-up approach of harvesting word counts and generating a time-series index will be my biggest contribution to the existing literature on this topic.

### 3. Data Construction

To investigate the role of political pressure in monetary policy, I first developed a Political Pressure Index for the United States and examined its evolution from 1929 to 2017. The choice on the index range is because reserve.gov website only had public presidential speech

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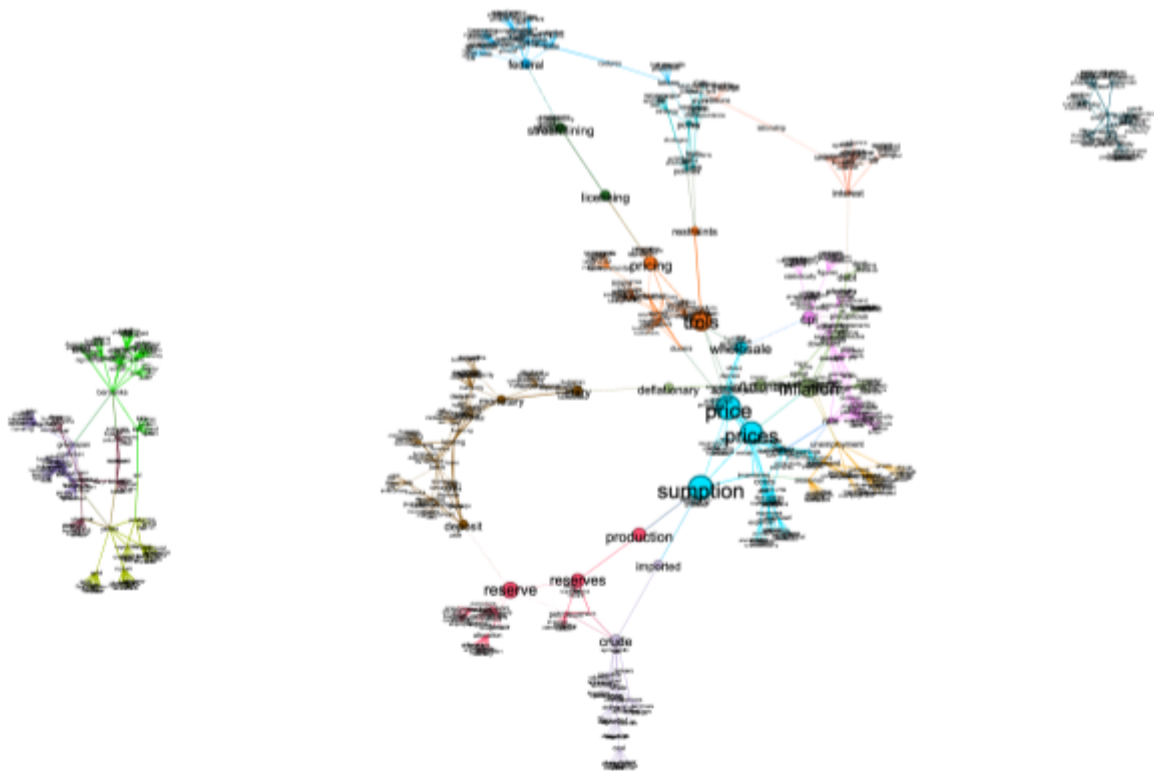
<sup>15</sup> Crowe, Christopher, and Ellen E Meade. 2007. “The Evolution of Central Bank Governance around the World.” *Journal of Economic Perspectives* 21 (4): 69–90. <https://doi.org/10.1257/jep.21.4.69>.

<sup>16</sup> Alesina, Alberto, and Lawrence H. Summers. 1993. “Central Bank Independence and Macroeconomic Performance: Some Comparative Evidence.” *Journal of Money, Credit and Banking* 25 (2): 151–62. <https://doi.org/10.2307/2077833>.

files from 1929 to 2017. My corpus is just less than 80 million words, which is about the length of 100 Bibles given each Bible is about 0.8 million words long. I downloaded the text of the presidential speeches from the [reserve.gov](https://www.reserve.gov) and generated a times series. The time series is generated through using Python programming to count and tabulate a list of indicator words, also called the lexicons, that capture political pressure. The idea is that through counting the number of times the lexicons appear in the presidential speeches, I establish a way of measuring the presidential pressure on the Fed. The way I formulated my list of lexicons was thinking about all possible scenarios that the president can talk about the Fed and comment on monetary policy, including synonyms of the Fed's dual mandate and the Fed chairperson names. Given different speeches have different word counts, I did a scaled version of the political pressure index by dividing the number of times each word appears by the total size of the speech corpus they are in. Considering the Fed's dual mandate and the Fed chairpersons, I created the initial lexicon list as follows: "monetary policy", "central bank", "federal reserve", "unemployment rate", "yellen", "greenspan", and "bernanke", "price stability", "inflation", "gas prices", "consumer price index" or "cpi", and "cost of living." Text mining and machine learning software tools were applied to harvest times of mention for these thematic words related to monetary policy.



**Figure 2** Gephi Visualization



To refine the list of lexicons that I use to measure political pressure in the context of presidential speeches, I used a software called Gephi to find the correlations from word to another based on the frequency they appear in the text. As seen from Figure 2, each dot is an individual word and the bigger the dot is, the more frequent the word appears in the presidential speeches. The further the line connecting the dots extend, the further away the word connected to the lexicon is in the sentences.

Using this visualization tool, I was able to refine my list of lexicons and I added the following words to my lexicon list: “Arthur Burns”, “consumption”, “contraction”, “cpi figures”, “deflation”, “deflation spiral”, “deflator”, “inflation spiral”, “inflationary”, “jobless”, “paul volcker”, “price volatility”, “underemployment”, “unemployed”, “william

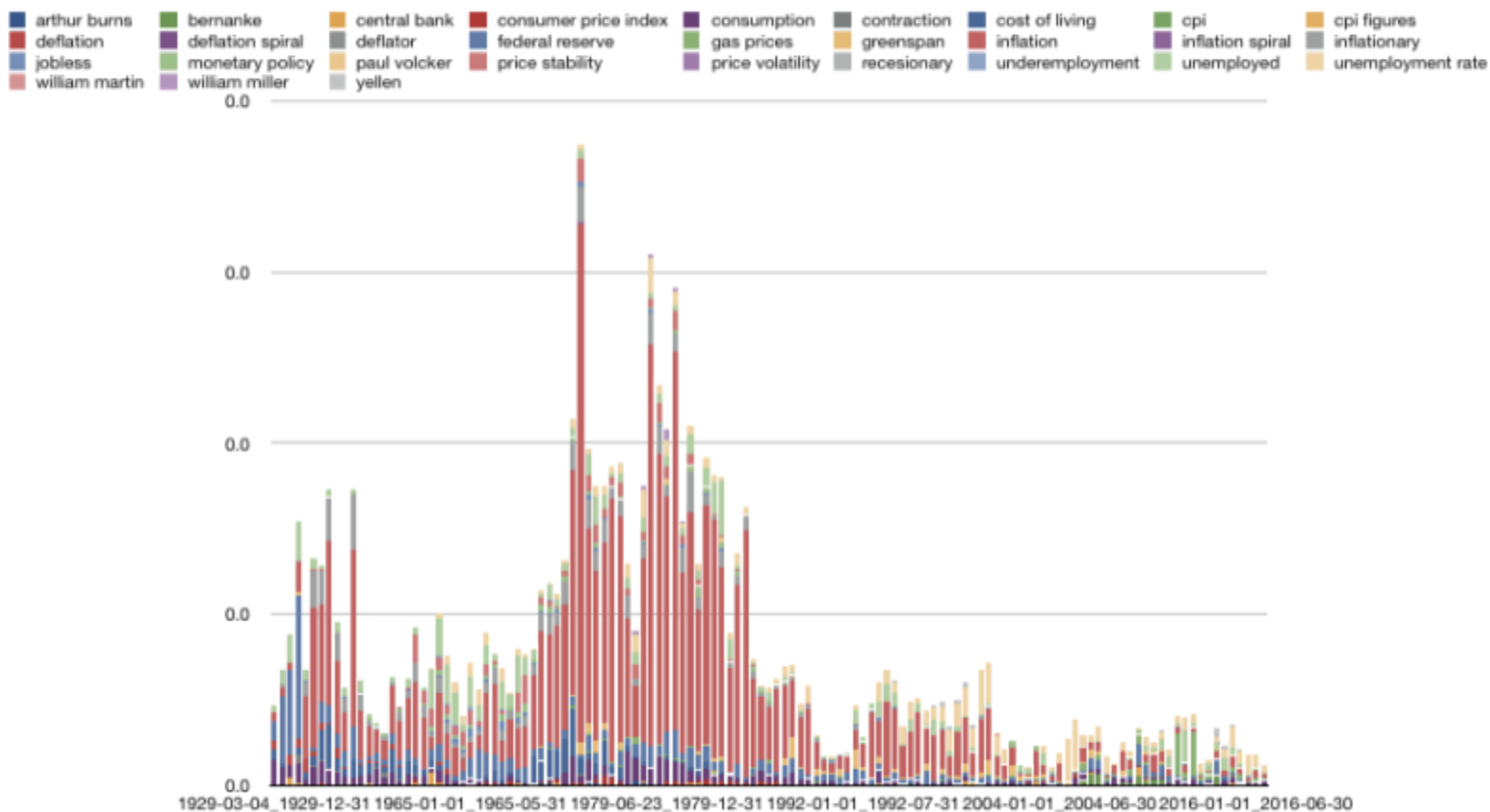
martin”, and “william miller.” William Martin served as the 9th chairman of the Federal Reserve from 1951 to 1970. William Miller was chairman of the Board of Governors of the Federal Reserve System from March 8, 1978, to August 6, 1979.<sup>17</sup>

To ensure the text mining software is picking up words in a meaningful monetary policy-related context, I constructed a stop word list to discount mentions of the keywords above in irrelevant contexts. To discount central banks mentioned in the context of foreign policy, my stopwords are as follows: “European central bank”, “Central bank of Iraq”, “Central bank of Iran”, “Central bank of Kenya”, “Central bank of Libya”, “Russian central bank”, “Central bank of Madagascar”, “Central bank of mexico”. I discovered that healthcare inflation occurs a lot in presidential speeches. To limit the search to just the context of monetary policy, I put “healthcare” on the stopword list. After running the stopword list, Figure 3 is my political pressure time series from 1929 to 2017.

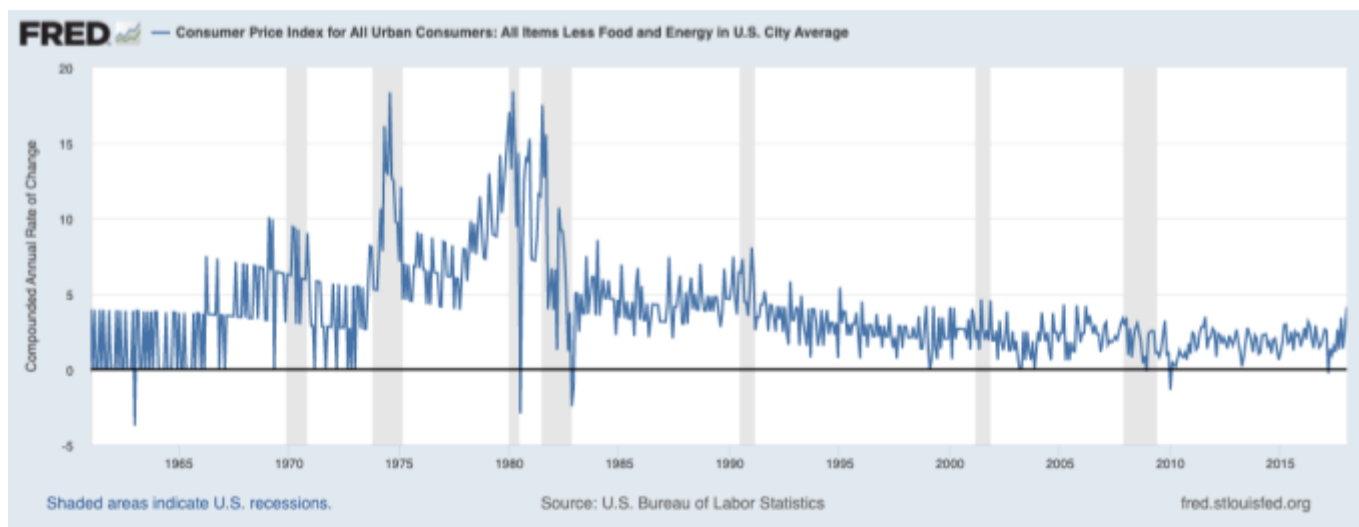
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<sup>17</sup> “G. William Miller | Federal Reserve History,” accessed April 2, 2023, <https://www.federalreservehistory.org/people/g-william-miller>.

**Figure 3** *Political Pressure Index*



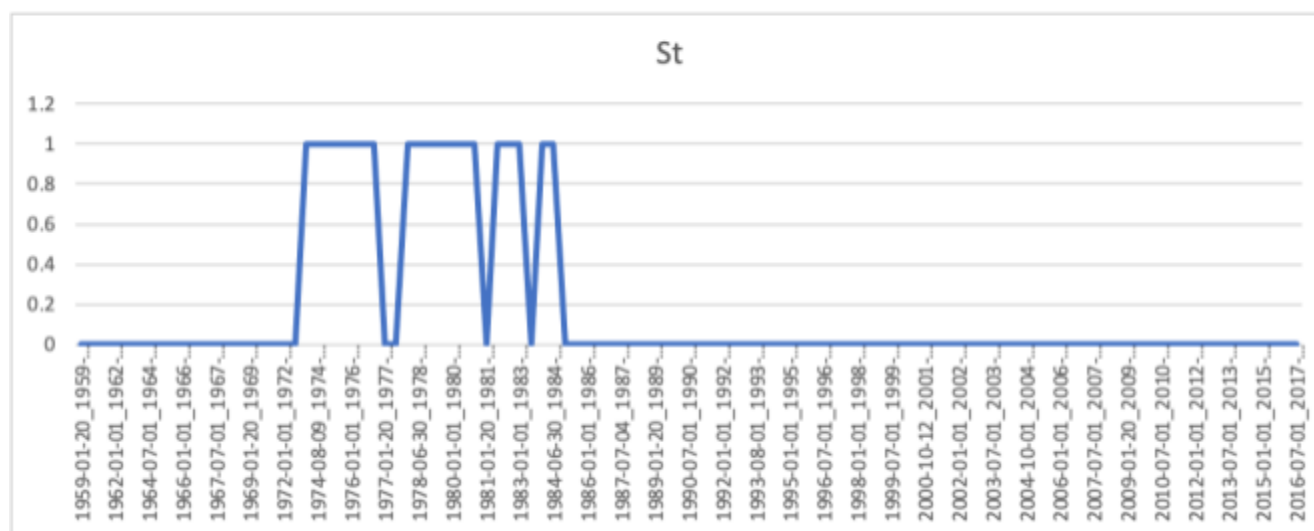
**Figure 4**



I placed Figure 4 the CPI inflation along with my time series above. It is significant that the number of times the president talks about the Fed has a similar trendline to the actual inflation in the US economy. This suggests that as inflation declined over the past decades, presidents in the US mentioned inflation less and less, which aligns with my expectations.

To be able to apply the political pressure index to my regression, I discretize the index time series into a 0 and 1 binary variable. I calculate the mean and standard deviation of the index. 0 is within half standard deviation plus or minus the mean, and 1 is more than half a standard deviation plus or minus the mean. Due to the lack of variations in political pressure in other years throughout my sample period, I used rolling standard deviations of two presidential terms, namely eight years to construct the discretized political pressure dummy variable. Since the presidential speeches are organized biannually and my other regression inputs such as inflation and unemployment are monthly data, I scaled down the political pressure index to monthly data from 1959 to 2017 as the graph below suggests. St stands for my political pressure index.

**Figure 5** *Political Pressure Dummy Variable*



As seen in Figure 5 above, the high political pressure phase tends to concentrate during the 1972-1984 period.

#### 4. Roadmap of Regression Analysis

The Taylor Rule is the premise of my regression analysis in this thesis. In 1993, John Taylor posited that the Fed sets interest rates (the Federal Funds rate) as a function of the deviations of inflation from target and output from “potential” where  $r^p$  is the natural rate of interest (long-run average interest rate),  $\pi_t^*$  is an exogenous inflation target,  $Y_t^*$  is “potential output,” and  $e_{i,t}$  is an exogenous shock (0 on average). s

$$i_t = r^p + \pi_t^* + \phi_\pi (\pi_t - \pi_t^*) + \phi_Y (Y_t - Y_t^*) + e_{i,t}$$

Since my thesis discusses the efficacy of the Fed in achieving the dual mandate, I will switch out the output variable from the Taylor Rule to unemployment rate “u”. I then rearrange the Taylor Rule to bring the constant to the front and isolate my two subjects of interest: inflation and unemployment rate as below.

$$i_t = (r^p - \phi_\pi \pi_t^* - \phi_U U_t^*) + \phi_\pi \pi_t + \phi_U U_t + e_{i,t}$$

The constant in the parenthesis from the equation above goes into the constant term “ $\alpha$ ” in my regression equation. To have the political pressure index term “ $s_t$ ” interact with my two subjects of interest, inflation, and the unemployment rate, I come up with the following equation.

$$i_t = \alpha + \beta_1 i_{t-1} + \beta_2 \pi_t + \beta_3 u_t + \beta_4 s_t + \beta_5 s_t \pi_t + \beta_6 s_t u_t + e_t$$

$\beta_5$  and  $\beta_6$  will provide meaningful intuition on the impact of political discussion on the Fed’s efficacy in achieving the dual mandate. In the long run, with every 1% increase in the PCE

inflation, the FFR increases by  $\beta_2/(1-\beta_1)$ . Therefore, I added the lagged interest rate term in my regression.

In my regression result, I will compare  $\beta_2+\beta_5$  and  $\beta_3+\beta_6$  to examine the magnitudes of changes in inflation and unemployment rate with the presence of political pressure.

## 5. Regression Results

As the first column of Table 1 shows, I regress the LHS variable (FFR) on the RHS variables including one-period lag of FFR (FFRWX\_lag1), inflation (PCE), and unemployment rate (U) to estimate the Taylor Rule. The time period is 1959 to 2017. I chose 1959 not 1929 as my starting year because economic data post Korean war is more reliable and stable than during the wartime. The units on the LHS and RHS are expressed at annualized rates. With a 1% increase in inflation, the federal funds rate increases by 0.026%. With a 1% increase in the unemployment rate, the federal funds rate decreases by 0.042%. In the long run, the FFR increases by  $0.025/(1-.984) = 1.56\%$  given a 1% increase in inflation, which affirms the Taylor Rule. This perfectly aligns with my expectation as the Fed is poised to raise interest rates seeing rising inflation but would have a negative effect on the unemployment rate.

In the second column, I regress the LHS variable (FFR) on the RHS variables including one-period lag of FFR (FFRWX\_lag1), inflation (PCE), unemployment rate (U), the political pressure (St), inflation interacted with the political pressure variable, and the unemployment rate interacted with political pressure. The regression equation is presented below. Unemployment rate interacted with the political pressure refers to  $s_t u_t$  and PCE subject to political pressure refers to  $s_t \pi_t$ .

$$i_t = \alpha + \beta_1 i_{t-1} + \beta_2 \pi_t + \beta_3 U_t + \beta_4 s_t + \beta_5 s_t \pi_t + \beta_6 s_t U_t + e_t$$

Under political pressure, the federal funds rate increases by 0.031% (0.033+(-0.002)) given a 1% increase in inflation. I sum the two coefficients because the coefficient of inflation and political pressure interaction is meaningful when the St takes the value of 1. The sum shows how the federal funds rate responds to high political pressure.

Table 1. Main Estimation Results

	Standard Taylor Rule	Taylor Rule with political pressure		
	Full-Sample	Full-Sample	Pre-Great Moderation	Post-Great Moderation
FFRWX_lag1	0.984*** (0.012)	0.978*** (0.012)	0.941*** (0.037)	0.988*** (0.005)
PCE inflation	0.026*** (0.009)	0.033*** (0.012)	0.071** (0.034)	0.014** (0.007)
Unemployment	-0.042*** (0.013)	-0.031** (0.012)	0.007 (0.046)	-0.027*** (0.009)
St (Political Pressure)		0.339 (0.249)	0.554 (0.502)	1.364** (0.592)
PCE subject to political pressure		-0.002 (0.027)	-0.011 (0.039)	-0.024* (0.013)
Unemployment subject to political pressure		-0.069* (0.039)	-0.124 (0.084)	-0.224** (0.104)
Number of Observations	694	694	322	371

Significance:\*\*\*=0.01, \*\*=0.05, \*=0.1

Notes: standard errors are in parentheses, the sample spans the period 1959-2017, Pre-Great Moderation spans the period 1959-1985, Post-Great Moderation spans the period 1985-2017, R<sup>2</sup>=0.9825

Under political pressure, the federal funds rate decreases 0.10% (-0.069-0.031) given a 1% increase in unemployment rate. Compared to 0.031% change for a 1% increase in inflation, the FFR's reaction to a 1% increase in unemployment rate is three times as big as the FFR's reaction to a 1% increase in inflation. This shows that the Fed deviates from its inflation target to the unemployment rate at the presence of political pressure from the Fed. Even though the terms with the political pressure variable are statistically insignificant, there is economic significance for this data. The federal funds rate still reacts positively to an 1% increase inflation and negatively to an 1% in unemployment rate. The change is that it reacts less to inflation and a lot more to the unemployment rate under political pressure.

In the third column, I examine regression results only during the period 1959-1985. The division in 1985 is due to the significance of the Great Moderation on central bank independence. Scholars argue that the Fed's independence has greatly improved post-Great Moderation. Therefore, I split my sample into two parts to investigate how monetary policy differs prior to and after the Great Moderation.

Under political pressure, the federal funds rate increases by 0.06% (0.071-0.011) given a 1% increase in inflation. Under political pressure, the federal funds rate decreases by 0.117% (0.007-0.124) given a 1% increase in the unemployment rate. Under political pressure, the federal reserve responds to the unemployment rate with a bigger magnitude of "0.117%" against decreasing the magnitude in responding to inflation rate by "0.06%". This shows that the Fed deviated from its inflation target to the unemployment rate prior to the Great Moderation. Even though the terms with the political pressure variable are statistically insignificant, there is economic significance for this data. The federal funds rate still reacts positively to an 1% increase in inflation and negatively to an 1% in unemployment rate.



In the fourth column, I examine the post-Great Moderation regression results from 1985-2016. With a 1% increase in inflation, the federal funds rate decreases by 0.01% under political pressure. This is a little odd given the T a 0.01% increase in magnitude compared to without political pressure. With a 1% increase in the unemployment rate, the federal funds rate decreases by 0.224% under political pressure, a 0.197% increase compared to decreasing by 0.027% without political pressure. Under political pressure, the federal reserve responds to the unemployment rate with a bigger magnitude of “0.197%” against increasing the magnitude in responding to inflation rate by “0.01%”. This stark contrast shows that the Fed continued and expanded its deviation from its inflation target to the unemployment rate post-Great Moderation. What exacerbated the deviation in the Fed’s reaction function post-Great Moderation requires further research.

## **6. Conclusion**

Using an original political pressure index, I concluded that the Fed reacts more to the unemployment rate and less to the inflation rate under high political pressure regimes. However, I acknowledge that political pressure on the Fed occurs in forms much more extensive than presidential speeches. The private phone calls between the president and the Fed chair in the White House can have a far more profound impact on the course of monetary policy. Another example is Congressional discussions on macroeconomics. A critique from a congressional person can have similar political pressure on the Fed as the president. I also recognize that the political pressure index I established is just one way to measure political pressure ---- after all, the intended audience is the American people and not the Board of Governors.

My conclusion warns of the tendency of monetary policy deviating from the inflation to the unemployment rate. It also implies the need for future studies to understand the best practices to maintain central bank independence in an increasingly political world. It can be worthwhile to revisit my conclusion after the presidential speeches from the Trump era are accessible online and after incorporating them into my political pressure index. Political pressure in forms beyond presidential also need to be investigated.

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