

Balancing Inflation and Unemployment: Text Analysis of Annual Monetary Policy Report

Cameron DeHart, Ohio State University

The Congressional statute governing monetary policy instructs the Fed to pursue “maximum employment, price stability, and moderate long-term interest rates.” Several people, however, believe that the Fed’s primary responsibility is to control inflation. There is disagreement among scholars and public officials about the proper role of the Federal Reserve, and an apparent discontinuity between the public’s perceptions of what the Fed does and what it is supposed to do. In this paper, I test two hypotheses about Fed policy outcomes. I test whether the Fed balances its objectives or is primarily focused on inflation. First, I find that there is little evidence that Fed policymaking tracks economic conditions between 1978 and 2007. Second, I find that the Fed showed more concern for inflation than unemployment in that same period, economic conditions notwithstanding. I conclude with suggestions for future research.

Many people believe that the Federal Reserve’s primary objective is to fight inflation. But the statute that governs the Fed, the Federal Reserve Act, says otherwise. According to Section 2a, the Fed is supposed to implement monetary policy “so as to promote effectively the goals of maximum employment, stable prices, and moderate long-term interest rates.” This section of the statute, often referred to as the *dual mandate*, does not instruct policymakers to pursue one objective with more vigor than the other. The law places maximum employment and price stability on equal footing.

Despite this plain language, many scholars and public officials believe that the Federal Reserve’s main job is to control inflation. This misperception about the Fed’s responsibilities is pervasive in academia and the federal government. Richard Rahn, a senior fellow at the Cato Institute, asserted in the *Washington Times* that the Fed was created to ensure price stability, and that any other objectives (statutory or otherwise) complicate that mission (Rahn 2012). Economist John Taylor (1998) discusses “right” and “wrong” monetary policy in terms of the responsiveness to inflation risks, not unemployment. Mickey D. Levy (2012) criticizes recent Fed actions to reduce unemployment, and pines for Chairmen Volcker and Greenspan who recognized “stable low inflation is the best foundation for sustained economic growth and maximum employment.” In his comprehensive history of the Federal Reserve System, economist Allan Meltzer said that scholars widely accept that “employment and unemployment rates are independent of monetary actions, so that monetary policy is fully reflected in the inflation rate and the nominal exchange

rate” (Meltzer 2010). Marvin Goodfriend (2012) judges the Federal Reserve’s success by its willingness to *preemptively* raise interest rates to stave off inflation. Cukierman (1992) claims that “[t]here is a widespread feeling among economists...that the degree of independence of a nation’s central bank (CB) is an important determinant of policy actions and therefore of inflation.” The misperception about the Fed’s objectives even permeates into the ranks of Federal Reserve officials. Jeffrey Lacker, the president of the Richmond Fed district, said in a January 2012 interview with CNBC that “The Fed does not control growth...Our job is to keep inflation low and stable” (Lacker 2012). As a Fed Governor, economist Frederic Mishkin stressed the importance of “low and predictable” inflation for the economy’s long-term health, and warned against “stimulative monetary policy” aimed at boosting unemployment (Mishkin 2007). In his 2005 confirmation hearing as Chairman of the Federal Reserve, Ben Bernanke said that central bankers, including the Fed, understood that controlling inflation was vital to achieving monetary policy’s other objectives. (Bernanke 2005). Senator John Sununu agreed: “Price stability is absolutely critical.”

The pervasiveness of this misperception about the Federal Reserve’s objectives is problematic. The public’s belief about what the Federal Reserve is supposed to do is disconnected from what the statute actually dictates to policymakers. Beyond this, it is unclear what the Federal Reserve actually does. Do policymakers balance their objectives, as mandated by Congress, or are they primarily focused on inflation, as the public perception seems to suggest? If the Fed balances price stability and employment, then we must explain why scholars and public officials think the Fed is supposed to focus on inflation. In that case, there is a disconnect between the public’s expectations and the Fed’s policy output. If the Fed is instead primarily focused on inflation, then we need to explain why policy outcomes differ from the Congressional mandate. In either case, ambiguity about the Federal Reserve’s mission and performance confuses our understanding of the institution and monetary policy.

In order to resolve this confusion about the Federal Reserve’s mission and its policy outputs, it is appropriate to test the Fed’s responsiveness to changes in economic conditions. Given an equal consideration to both unemployment and inflation, Fed policy outcomes should appear responsive to fluctuations in the economic conditions. If the Fed is more concerned with inflation than unemployment, then we would expect to see policies that are more responsive to changes in inflation. Determining the Fed’s responsiveness to economic conditions will help clarify whether the Fed balances its objectives or is primarily focused on inflation.

In the remainder of this paper, I review the history of the Federal Reserve’s *dual mandate* and economists’ recent preoccupation with price stabil-

ity. I then present two hypotheses about Fed policy outcomes. The first, called the *Balancing Hypothesis*, supposes that the Fed follows its Congressional mandate literally and is responsive to unemployment and inflation equally. The second, called the *Inflation Focus Hypothesis*, states the Fed is focused more heavily on its price stability mandate. I go on to test these hypotheses with regression analysis of economic conditions on word frequencies from annual Federal Reserve reports. Following a discussion of my results, I conclude with directions for future research.

The Focus on Inflation

Congress created the Federal Reserve System in 1913 to “furnish an elastic currency” and to provide stability to the financial system. At that time, controlling inflation was a peripheral concern to policymakers because they believed the gold standard was sufficient to stabilize the value of money (Greider 1987). Changes in the domestic and international economy, including the demise of the gold standard in the last century, forced Congress to reform the Fed.

Today, the Federal Reserve System is comprised of two main bodies: the Board of Governors and the twelve Reserve banks. The seven governors on the Board are appointed by the President and approved by the Senate. Serving fourteen-year terms, they are tasked with oversight of the national banking system. The twelve Reserve banks are led by “Presidents” selected by the member banks in the Reserve districts scattered around the country. These two bodies come together to decide monetary policy on the Federal Open Market Committee (FOMC), comprised of all seven Governors, the New York President, and four other District Presidents on an annual rotating basis.¹

The Fed’s current modern policy mandate originated with the Employment Act of 1946, which made full employment a stated goal of the United State government. Congress extended the mandate to the Fed in 1977 in the Federal Reserve Reform Act: “The formulation and implementation of monetary policy...shall be governed by the national policy to promote maximum employment, production, and price stability.” A year later, lawmakers reaffirmed but reworded the mandate to its current language: “to promote effectively the goals of maximum employment, stable prices, and moderate long-term interest rates.” The employment and price stability objectives are often called the *dual mandate*, and the balance between the two goals remains central to Fed policy discussion today.²

¹Although there are differences between the Federal Reserve System, Board of Governors, Reserve Banks, and Federal Open Market Committee, I find it appropriate to use Federal Reserve and Fed to discuss the institution in this paper.

²The third mandate (moderate long-term interest rates) is not usually given the same attention in analysis of Federal Reserve policy and politics (Blinder 1996).

Other scholars have studied whether central bankers like the Fed balance maximum employment and price stability. But much of this literature, done by academic economists in the 1970s, was concerned chiefly with a lack of focus on inflation. Specifically, economists in the mid-to-late 1970s were concerned that economic policymakers were not sufficiently responsive to inflation. The contemporary controversy about balancing employment and inflation was centered on the validity of the so-called Phillips Curve. Introduced in 1958 by economist William Phillips and subsequently refined by Keynesian scholars Paul Samuelson and Robert Solow in the 1960s, the Phillips Curve suggests an inverse relationship between inflation and unemployment. Economists and policymakers at the time were encouraged by the model's implications that government policy could reduce unemployment by tolerating slightly higher inflation. In the 1970s, however, some economists began to question the validity of the Phillips Curve as the U.S. economy faced simultaneously high unemployment *and* inflation. In particular, the monetarist school of economists, led by Chicago's Milton Friedman, argued that there was no long-term tradeoff between unemployment. Some scholars suggested that the goal for optimal monetary policy was price stability and not maximum employment (e.g. Kydland & Prescott 1977). Economists became acutely interested in how the central bank could build up its credibility to convince the market of its inflation-fighting abilities.

As the preoccupation with inflation took root among economists, tools emerged to fight the problem. In 1979, President Jimmy Carter appointed monetarist Paul Volcker to chair the Federal Reserve, and Volcker quickly set about reforming the Fed's operating procedures. Volcker believed that inflation was tied to concerns about long-term interest rates and that the Fed lacked the credibility to lower inflation expectations without a hard line policy.³ Volcker believed that the Fed must restore its credibility in order protect the store of value of money, a vital role for any central bank.⁴ He re-focused the Fed's attention on the growth of money,⁵ raised the discount rate and reserve requirements for banks in order to slow lending, and allowed interest rates to rise according to market demands.

Outside of the Fed, scholars studied the importance of political independence to the success of monetary policy. Specifically, scholars noted that if a

³See Goodfriend and King (2005) for a detailed analysis of the Volcker Disinflation.

⁴Money is said to be a reliable "store of value" if it can be kept and used at a later date. Inflation erodes the store of value by reducing its purchasing power overtime.

⁵The Federal Reserve's main policy tool since the 1980s has been the Federal Funds Rate, the interest rate at which reserve banks lend to one another overnight. In addition to targeting interest rates, the Fed experimented with manipulating reserve requirements, money supply growth targets, and the discount rate (the rate at which banks can borrow from the central bank).

central bank was independent from executive and legislative authority, it was more likely to reduce the rate of inflation (Rogoff 1985). The central bank independence literature presupposed that inflation-fighting was the desired goal of monetary policy, providing intellectual support to central bankers seeking greater independence from partisan politics. In the 1990s, scholars and policymakers turned to monetary policy rules, with which central bankers could navigate the business cycle by moving interest rates according to economic condition. One such policy regime known as inflation-targeting called for policymakers to rely heavily, if not solely, on the inflation rate when setting policy. Inflation-targeting was considered an ideal policy regime because it could “overcome the inflationary bias that is likely to follow from discretionary policy guided solely by a concern for social welfare” (Giannoni & Woodford 2003).

The most prominent of the monetary policy rules, proposed by economist John B. Taylor, instructed policymakers to set the nominal interest rate according to the observed and desired levels of inflation, as well as other variables (Taylor 1993). These tools were developed over two decades after Congress created the Fed’s *dual mandate*, yet each of them (money growth targets, credible commitments, central bank independence, inflation-targeting, and the Taylor Rule) operates from the presupposition that controlling inflation is the Federal Reserve’s *primary* obligation. .

The path dependence literature is helpful to understanding the evolution and persistence of the Fed’s inflation fighting policies. Pierson (2000) argues that policymakers pursue a particular policy path when they perceive increasing returns from continuing the policy, as opposed to some other alternative policy. This appears to be the case at the Federal Reserve under Chairman Paul Volcker, appointed in 1979 by President Jimmy Carter. According to an analysis of Fed transcripts in Goodfriend and King (2005), Fed officials were chiefly concerned with re-establishing the institution’s credibility to protect the value of the nation’s money. The Fed quickly implemented sharp interest rate increases and introduced money aggregate targets to bring inflation under control by 1980. With inflation slowly inching downward, and political concerns about rising unemployment pressuring the Fed to ease policy, Chairman Volcker refused to change course. The Federal Reserve saw an opportunity to restore its credibility as an independent and effective institution, and the Fed stuck to its anti-inflation policies (FOMC 1979). In the language of Pierson, the Fed perceived “increasing returns” for its public image by remaining tough on inflation. This focus on inflation never fully left the Fed, and staying the course ensured inflation-fighting would be the main goal of the Fed for the next three decades.

In the late 1970s, economists developed normative benchmarks for policy

that emphasized controlling inflation along with policy tools to address the problem of the day. The Federal Reserve adopted some of these tools (i.e., targeting money aggregates), but rejected others (i.e., explicit inflation-targeting). After the so-called “Volcker Disinflation”, the period in the late 1970s and early 1980s in which the Fed pushed down the inflation rate, did the Fed give equal attention to maximum employment and price stability? Or did the Fed continue to treat inflation-fighting as its primary objective? In the next section, I will discuss the behavior of Fed policymakers.

Although scholars have clear normative ideas about inflation, it is unclear whether the Federal Reserve’s policy outcomes reflect these ideas. I have two hypotheses about Fed policy output under the *dual mandate*.

Balancing Hypothesis: *The Federal Reserve is a neutrally competent institution that is responsive to fundamental economic conditions in line with the dual mandate.*

This hypothesis is consistent with the literature on neutral competence. As Kaufman (1956) summarizes, neutrally competent bureaucrats carry out their work “according to explicit, objective standards rather than to personal or party or other obligations and loyalties.” This hypothesis suggests that Fed policymakers follow their Congressional mandate to respond equally to unemployment and inflation, without showing greater preference for either condition. As economists and financial experts, Fed officials are tasked with following their mandate and they interpret it literally. Neutrally competent agencies, according to Hecl (1975), have a “vested interest in continuity” and thus pursue consistent policies, as well as work to address the expectations of government. According to the hypothesis, the Fed has an incentive to follow a consistent policy regime that is responsive to reasonable expectations to address the key economic problems in a given period. Specifically, the Fed wants to protect, or enhance, its credibility as a neutrally competent institution by reacting to the economy evenhandedly, as instructed by the statute.

The Federal Reserve is an ideal candidate for a neutrally competent bureaucracy: an institution staffed by professional economists, ostensibly removed from partisan politics, and governed by a clear mandate from Congress to promote maximum employment and price stability. The Fed’s insulation from politics, according to the *Balancing Hypothesis*, allows policymakers to pursue their mandated objectives without outside influence or prejudice. The Fed exhibits elements of Lewis’s (2003) four characteristics of bureaucratic insulation: independence, board or commission structure, fixed terms, and qualifications for administrators. The Federal Reserve is a creature of Con-

gress but has an independent budgeting process, and ⁶ although policymakers are required to report semiannually to Congress, their specific monetary policy actions are free from external approval. Additionally, although the President appoints Governors to the Fed, with Senate confirmation, Fed officials cannot be removed without cause. These various measures of independence create distance between the executive and legislative branches and the Fed, so that the neutrally competent monetary policymakers can take action without formal political pressure. Lewis (2003) specifically recalls the creation of the Fed as an example of policy-by-committee in order to insulate the agency from political influence. Decision-making by a board or commission reduces the possibility that a single individual can be politically pressured to affect policy outcomes. Fed Governors are also insulated from politics because they serve fixed terms of 14 years. Since Fed officials serve such long terms, and cannot be removed without cause, the President's opportunities to influence the Fed through appointment are rare. Lastly, the Federal Reserve Act specifies qualifications for Fed appointees that limit *presidential discretion*. Section 10 of the Federal Reserve Act requires the President to ensure "fair representation of the financial, agricultural, industrial, and commercial interests, and geographical divisions of the country" when appointing Fed Governors.⁷

The *Balancing Hypothesis* suggests that Fed uses its independence to expertly balance maximum employment and price stability, as Congress clearly mandates in the statute. The alternative to this hypothesis grants the Federal Reserve the very same independence, but suggests policymakers use this independence to pursue their own understanding of what the best monetary policy is, the actual statute notwithstanding.

Inflation Focus Hypothesis: *The Federal Reserve uses its political independence to implement policy according to its belief that price stability is a precondition for maximum employment.*

This hypothesis is consistent with the central bank independence literature. Several scholars have found that lower inflation is associated with independent central banks (i.e., Bade & Perkins 1982, Rogoff 1985). Alesina & Summers (1993) summarize, "Insulating monetary policy from the political process...helps enforce the low inflation equilibrium. Without some degree of political independence, it would be impossible to appoint [an inflation averse] central banker...which is a socially desirable goal." The Fed's independence allows it to pursue anti-inflationary monetary policy despite the neutrality of

⁶The Federal Reserve System finances its operations with interest earned on its portfolio of assets, and routinely returns the excess profits to the Treasury Department.

⁷Adherence to this requirement is dubious. A quick look at the past Governors reveals fewer farmers and labor leaders than bankers and academics.

the ruling statute. This hypothesis relies on a flexible version of *goal independence* discussed by DeBelle & Fischer (1994), in which the central bank is free to set its own policy objectives. The *dual mandate* rules out complete goal independence for the Fed, but the *Inflation Focus Hypothesis* suggests that the Fed shows greater concern for price stability than maximum employment, according to the institution's understanding of both conditions. The Fed uses its independence to re-interpret the *dual mandate* such that price stability is a precondition for maximum employment. In this sense, the Fed's focus on inflation causes it to follow a *hierarchical mandate*, resulting in policy outcomes that are more responsive to one economic condition than the other.

In the next section, I describe a research design to test these hypotheses using word frequencies to determine responsiveness to economic conditions.

Research Design

To test the *Balancing* and *Inflation Focus* hypotheses, I analyze the frequency of the words "inflation" and "unemployment" in Board of Governors Annual Reports. The Fed is required to submit these reports, to Congress each year according to Section 10:7 of the Federal Reserve Act. The reports, found on the Federal Reserve website,⁸ summarize monetary policy actions taken in the previous year, including minutes from FOMC meetings, as well as a summary of financial regulation and banking operations at the 12 reserve banks. These reports are useful to this analysis because they capture a year's worth of monetary policymaking documents in one body, and cover roughly the same material from year to year. My data set begins with the 1978 report, the first year after Congress passed the Federal Reserve Reform Act. The Fed was under legislative mandate to promote maximum employment and price stability during the entire period.

The dependent variables in my analysis are the frequency of "inflation" and "unemployment" per 10,000 words. These two words are common analogues for the price stability and maximum employment objectives of the Fed's *dual mandate*, and are used regularly in the financial press and economic literature. I use these two words here in order to identify discussions about the corresponding economic condition, and acknowledge that policymakers may have framed the discussion in different terms (see Appendix A). Frequencies were determined by counting occurrences of the words in each annual report, an application of content analysis that is not unfamiliar to political scientists. Other scholars have used similar methods to discern policy preferences from political documents (e.g., Gabel and Huber 2000), and this paper shows a simple application of the technology.

The key independent variables in my analysis are normalized annual mea-

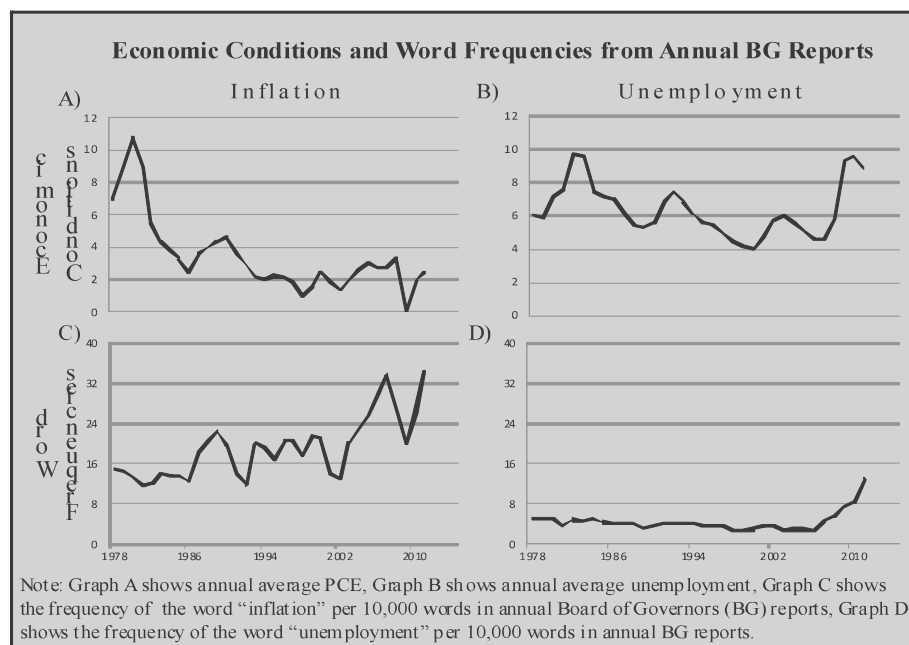
⁸<http://fraser.stlouisfed.org/publication/?pid=117>

asures of the Personal Consumption Expenditure (PCE) price index for inflation and the National Unemployment Rate for unemployment.⁹ I also control for year, centered on 1978.

Results

Two main findings emerge from this analysis. Excepting the Great Recession (beginning in late 2007), there is no evidence that Fed policymaking tracks economic conditions. Second, inflation verbiage dominates unemployment in Annual Reports. I show these findings two ways: first graphically, and then analytically.

Figure 1



First, Figure 1 is not consistent with the *Balancing Hypothesis*. Graphs C and D show the contrast between the frequencies of “inflation” and “unemployment”. Inflation is discussed more frequently than unemployment, and

⁹Inflation data is available on the St. Louis Federal Reserve Economic Data (FRED) website, and unemployment data is available from the Bureau of Labor Statistics. Core PCE is the main inflation index used by the Federal Open Market Committee, the policymaking body of the Federal Reserve. Although the more familiar Consumer Price Index (CPI), sometimes called headline inflation, is often used to discuss the Fed’s policies in the media, I found it more appropriate to use the Fed’s preferred index. Substantively similar results emerge if I use CPI instead of PCE in my analysis.

increasingly so over the course of the data set. The frequency of “unemployment” appears to decline over time before rising suddenly in the late 2000s.

Figure 1 suggests support for the *Inflation Focus Hypothesis*. The Fed does not appear equally responsive to the two economic conditions. Graph C shows the increase in “inflation” frequency over time, despite the steep decline and stabilization of the inflation rate over time, seen in Graph A. Graphs B and D together suggest that the Fed was not responsive to unemployment before 2007, and did not use the word more frequently when the annual unemployment rate peaked three previous times. Figure 1 shows that concern for inflation was increasing even as the annual inflation rate was declining, but that concern for unemployment was largely unchanged until 2008.

Before 2007, there is almost no evidence that Fed policymaking was responsive to underlying economic fundamentals of the *dual mandate*. This graphical evidence suggests that the Fed was more concerned with inflation than unemployment each year, consistent with the *Inflation Focus Hypothesis*.

Broadening the scope of this analysis, I search for the specific language of the *dual mandate* mentioned in the Annual Reports (see Figure 2). “Price stability” is mentioned in every annual reported from 1978 to 2011, but “maximum employment” is very sparsely, if ever, used in the first two decades of the dataset. Similar to the count of “unemployment” in figure 1, mentions of the “maximum employment” half of the *dual mandate* rapidly increases around the onset of the 2007 recession.

Figure 2

Word frequencies from Annual BG Reports, 1978-2011

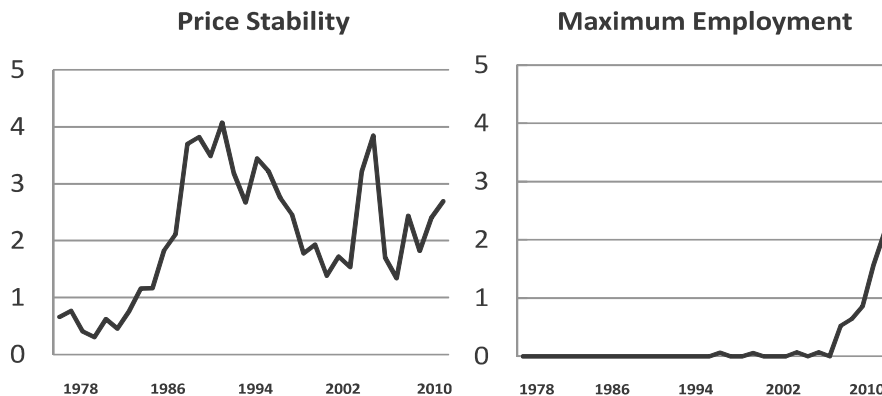
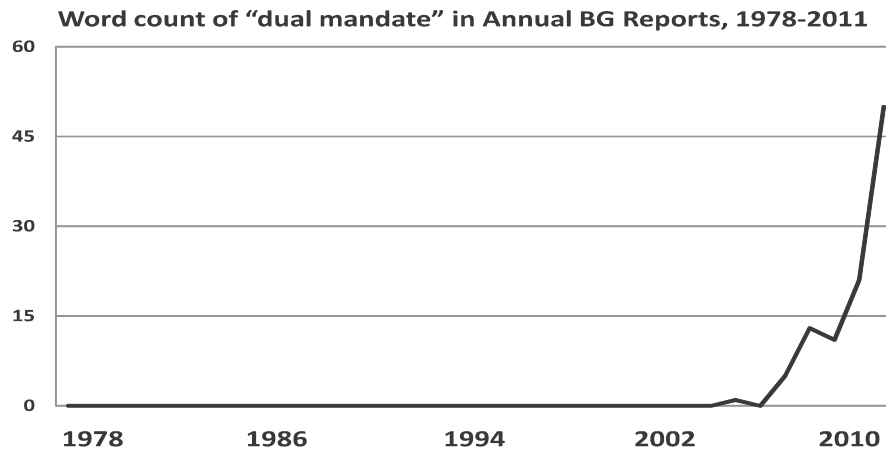


Figure 2 is vulnerable to the same objections as Figure 1: the absence of presumably relevant keywords is not proof that discussions of those concepts

did not take place. The disparity in references to price stability and maximum employment does, however, suggest that policymakers showed deference to the former when they did use statutory language to discuss policy. References to the *dual mandate* itself were similarly sparse (see figure 3).

Figure 3



Next, I perform two sets of regression analyses, regressing the word frequencies on the relevant economic variables

Table 1: Association of Inflation (PCE) and Frequency of “Inflation” in Fed Annual Reports

	1978-2011	1978-2007
Inflation	2.16*	1.72
	(0.97)	(1.04)
Year	0.61*	0.57*
	(0.10)	(0.12)
Constant	9.06*	9.71*
	(1.74)	(1.94)
Adjusted R ²	0.60	0.49
N	34	30

Note: Dependent variable is number of occurrences of the word “inflation” per 10,000 words in Federal Reserve Annual Reports for the regression analysis. * $p < .05$, two-tailed t -test

There is a small, positive, statistically significant association of annual inflation rate and the word “inflation” for 1978 to 2011. When the recent economic downturn after 2007 is removed, the association remains positive, although slightly weaker and statistically insignificant. The association between “inflation” frequency and year is positive and significant for both time periods. These results support the *Inflation Focus Hypothesis*, suggesting that the Fed discussed inflation more often over time.

I perform a similar regression of the frequency of the word “unemployment” and the measure of unemployment. Recall that the dependent variable is the number of times the word “unemployment” occurs per 10,000 words in the Annual reports. The key independent variables are the normalized annual measures of the National Unemployment Rate and year, centered on 1978. The regression results are shown in Table 2.

Table 2: Association of Unemployment Rate and Frequency of “Unemployment” in Fed Annual Reports

	1978-2011	1978-2007
Unemployment	1.38*	0.20
	(0.24)	(0.15)
Year	0.07*	-0.05*
	(0.02)	(0.01)
Constant	3.16*	4.54*
	(0.46)	(0.22)
Adjusted R ²	0.52	0.52
<i>N</i>	34	30

Note: Dependent variable is number of occurrences of the word “unemployment” per 10,000 words in Federal Reserve Annual Reports for the regression

analysis. * $p < .05$, two-tailed *t*-test

There is a small, positive, and statistically significant association between frequency of “unemployment” and the National Unemployment Rate. Once the recent economic downturn is removed, however, that association disappears; for 1978-2007, the association is nearly seven times smaller and no longer significant. In the full data set, there is a small increase in mentions of “unemployment” each year, but once we exclude the recent downturn, that association turns negative. These results provide no support for the *Balancing Hypothesis* between 1978 and 2011. The constant terms suggest that the Fed

discusses inflation 2.14 to 2.87 times more than unemployment, independent of the economy's health and year, and these results are statistically significant for all four analyses.

These results are consistent with the *Inflation Focus Hypothesis* for that same period. The frequency of the key words was more responsive to deviations in the inflation rate, even when the two conditions deviated comparably. An increase in inflation by one standard deviation is associated with an increase in mentions of "inflation" by 2.16 words per 10,000, compared to just 1.38 additional mentions of "unemployment".

This analysis also suggests that controlling for deviations in economic conditions, the Fed discussed inflation more frequently each year, while mentions of "unemployment" grew to a small degree on average annually. When I removed the recent downturn, annual mentions of "inflation" were similar in sign, strength, and significance, while annual mentions of "unemployment" actually declined. This suggests that the Fed talked more about inflation and less about unemployment over time, at least until 2008.

Conclusion

This paper showed that there is no evidence in the aggregate that the Federal Reserve balances its inflation and unemployment mandates from 1978 to 2011. Excepting the Great Recession, there is little evidence that the Fed was responsive to fundamental economic conditions in line with its *dual mandate*. In fact, the graphical and analytical evidence suggests that the Fed was decidedly more focused on inflation during the observed time period. Since 2007, however, the Fed appears to have become more interested in unemployment than it has been in the past. It is unclear whether this observation is indicative of a structural shift in the Federal Reserve's objectives away from a focus on inflation or just a temporary response to the Great Recession.

In future projects, I hope to expand my data set to include a greater range of documents across the Fed's century of operation in order to test the robustness of the *Inflation Focus Hypothesis*. DeHart (2013) performs a similar analysis of word frequencies using transcripts from Federal Reserve policy meetings, and provides additional support to this paper's conclusions.

Like most research on important topics, these results raise more questions than they answer. Future research should look into the Fed's responsiveness to economic fundamentals before 1978 in order to determine if the Congressional *dual mandate* demonstrably impacted the Fed's policy outcomes. Other scholars have investigated the Fed's responsiveness to economic conditions under a variety of scenarios including: different Chairmen, Presidents, or majority control in Congress; before presidential or mid-term elections; under different

monetary regimes. Much of this work relied on interest rates, the Fed’s main policy tool, to measure that institution’s policy stance. The federal funds rate has been close to zero for a half-decade and students of the Fed need to find alternative and complementary tools to interpret monetary policy. This paper presents text analysis of policy materials as one such tool.

Appendix

Figure 4

Frequencies of alternative keywords from Annual BG Reports, 1978-2011

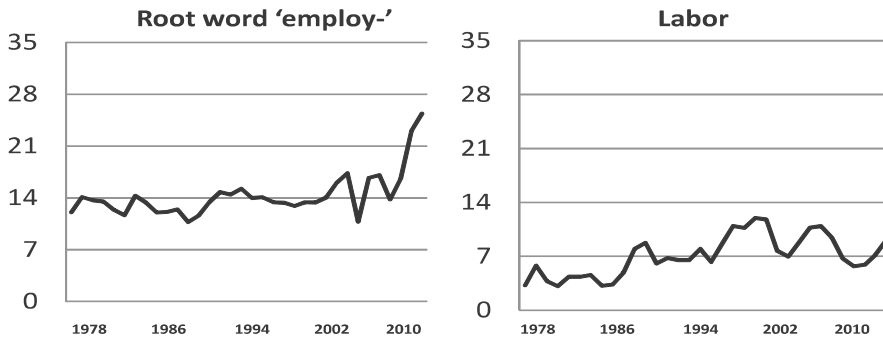
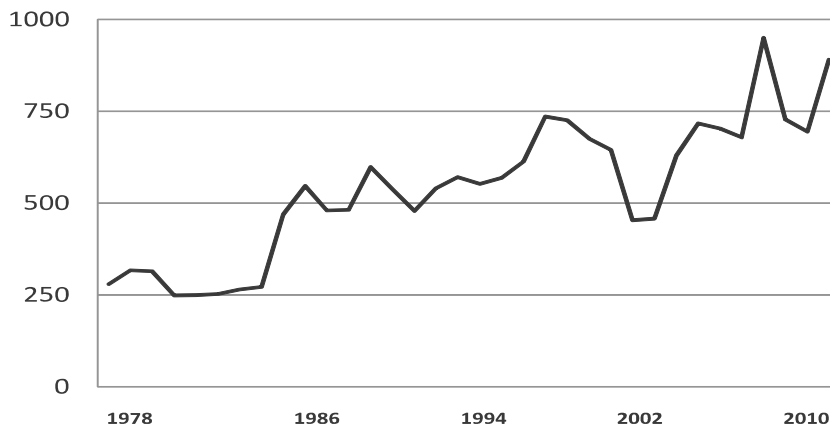


Figure 5

Frequency of root word 'price-' from Annual BG Reports, 1978-2011



References

- “Employment Act of 1946” (P.L. 79-304), *United States Statutes at Large*. 60 Stat. 23. 15 USC 1021.
- “Federal Reserve Act” (P.L. 63-43), *United States Statutes at Large*. 38 Stat. 251. 12 USC 3.
- “Federal Reserve Reform Act of 1977” (P.L. 95-188), *United States Statutes at Large*. 91 Stat. 1387.
- “The Full Employment and Balanced Growth Act” (P.L. 95-523), *United States Statutes at Large*. 92 Stat. 1887.
- Alesina, Alberto, and Lawrence H. Summers. 1993. “Central Bank Independence and Macroeconomic Performance: Some Comparative Evidence.” *Journal of Money, Credit, and Banking*. 25(2): 151-162.
- Bade, Robert, and Michael Parkin. 1982. “Central Bank Laws and Monetary Policy.”
- Bernanke, Ben S. 2005. “Testimony of Ben S. Bernanke.” Nomination hearing before the Committee on Banking, Housing, and Urban Affairs, U.S. Senate. November 15, 2005.
- Blinder, Alan S. 1996. “Central Banking in a Democracy.” *FRB Richmond Economic Quarterly*. 82(4): 1-14.
- Cukierman, Alex. 1992. *Central Bank Strategy, Credibility, and Independence*. MIT Press.
- DeBelle, Guy, and Stanley Fischer. 1994. “How independent should a central bank be?” Working Papers in Applied Economic Theory. 94-05, Federal Reserve Bank of San Francisco.
- DeHart, Cameron. 2013. “The Federal Reserve’s Dual Mandate: Balancing Act or Inflation Fixation?”. Honors research thesis. The Ohio State University.
- Federal Open Market Committee. 1979. “Meeting of the Federal Open Market Committee: August 14, 1979”. Transcript.
- Gabel, Matthew, and John D. Huber. 2000. “Putting Parties in Their Place: Inferring Party Left/Right Ideological Positions from Party Manifestos Data.” *American Journal of Political Science*. 44(1): 94-103.
- Giannoni, Marc P., and Michael Woodford. 2003. “Optimal Inflation Targeting Rules.” *Inflation Targeting*, Bernanke and Woodford, eds., 2005. Chicago Press.
- Goodfriend, Marvin. 2012. “Securing the Promise of Price Stability.” Shadow Open Market Committee. April 20, 2012.
- Goodfriend, Marvin, and Robert G. King. 2005. “The Incredible Volcker Disinflation.” *Journal of Monetary Economics*. 52(5): 981-1015.
- Greider, William. 1987. *Secrets of the Temple: How the Federal Reserve Runs*

the Country. Touchstone.

- Hecklo, Hugh. 1975. "OMB and the Presidency – The Problem of 'Neutral Competence'." *Public Interest* 38 (Winter): 80-98.
- Kaufman, Herbert. 1956. "Emerging Conflicts in the Doctrines of Public Administration." *American Political Science Review*. 50 (4): 1057-1073.
- Kydland, Finn E., and Edward C. Prescott. 1977. "Rules rather than discretion: The inconsistency of optimal plans." *Journal of Political Economy*. 85(3): 473-91.
- Lacker, Jeffrey. 2012. Quoted in "Drags on economy 'more serious' than thought: Lacker." *CNBC*. January 11, 2012.
- Levy, Mickey D. 2012. "Monetary Policy: Little Economic Impact, High Risks." *Shadow Open Market Committee*. November 20, 2012.
- Lewis, David. E. 2003. *Presidents and the Politics of Agency Design: Political Insulation in the United States Government Bureaucracy, 1946-1997*. Stanford University Press.
- Meltzer, Allan H. *A History of the Federal Reserve, Volume 2, Book 1, 1951-1969*. 2010. University of Chicago Press.
- Mishkin, Frederic S. 2007. "Monetary Policy and the Dual Mandate." Speech delivered at Bridgewater College, VA. April 10, 2007.
- Phillips, A. W. 1958. "The Relationship between Unemployment and the Rate of Change of Money Wages in the United Kingdom 1861-1957." *Economica* 25 (100): 283-299.
- Pierson, Paul. 2000. "Path Dependence, Increasing Returns, and the Study of Politics." *American Political Science Review*. 94 (2): 251-267.
- Rahn, Richard W. "Fixing the Federal Reserve." *Washington Times*. February 27, 2012.
- Rogoff, Kenneth. 1985. "The Optimal Degree of Commitment to an Intermediate Monetary Target." *The Quarterly Journal of Economics*. November 1985.
- Taylor, John B. 1993. "Discretion versus Policy Rules in Practice." *Carnegie-Rochester Conference Series on Public Policy*, 39: 194-214.
- Taylor, John B. 1998. "Monetary Policy and the Long Boom." *St. Louis Fed Economic Review*
- Wright, John R. 2010. "Ambiguous Statutes and Judicial Deference to Federal Agencies." *Journal of Theoretical Politics*. 22(2): 217-245.