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Economic Performance and Policy Effectiveness under Partisan Government Institutions: 1955-2016

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A B S T R A C T

This study examines economic performance and effectiveness of monetary and fiscal policies under three different partisan government institutions with the assessment ratio, $(\frac{realGDP}{GDPtrend}/\sigma_{inflation})$, which reflects the Fed's dual policy goal (economic growth and price stability) as the overall economic performance or strength measure. Results of this study suggest the following: The overall economic performance significantly higher and the monetary policy is more expansionary under the Democratic presidents. When the Republicans hold the executive power, the policy effectiveness is much weaker, neither monetary nor fiscal policy can significantly improve the overall economic performance. The economic performance under the Democratic House is weaker than that under the Republican one. The tight monetary and stimulating fiscal policies under the Democratic House lead to a marginally lower assessment ratio, much higher inflation and price volatility. The Republican-controlled House uses both policies to fight expected and unexpected inflation, while the Democratic one promotes output growth with the stimulating fiscal policy. Although economic performance is only marginally better under the Democratic Senate, both monetary and fiscal policies are more effective, compared to the Republican one.

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1. Introduction

There is a rich body of academic studies that explores relationships between partisan government institutions and macroeconomic performance. For example, with their 64-year sample, Blinder and Watson (2015) find the annualized GDP growth is significantly higher under Democratic presidents, compared with their Republican counterparts, because the Democratic Party is relatively more averse to unemployment and less averse to inflation than the Republican Party (Alesina, 1987; Beck, 1984, 1986; Poole and Rosenthal, 1986). Hibbs (1977) finds evidence from 12 West European and North American nations, which reveals a combination of low unemployment and high inflation under the left-wing governments and a high unemployment-low inflation pattern under the center and right-wing political system. Similar findings are also reported in the studies on broader international economies, such as OECD countries (Potrafke, 2012; Belke and Potrafke, 2012). However, the use of individual statistics, unemployment and inflation in this case, makes comparison of performance in different partisan governments difficult. Is the combination of low unemployment and high inflation necessary better or worse than that of high unemployment and low inflation? To answer the question, the economic performance must be assessed by a single measure that integrates key statistics to effectively quantify policy achievements.

Another open question is about the impact of the partisan legislature branch on economy. The U.S. constitution authorizes Congress and more specifically, the House of Representatives "to hold the purse-strings." Therefore, Congress can exert great power to shape annual budget and other fiscal plans, which can affect the economy significantly. Furthermore, Cox and McCubbins (1993, 2005) propose the procedural cartel theory of party power, which describes how does the majority party as a cartel seizes the procedural or rule-making power to move the agenda or policy towards the preference of its party. The party cartel theory is even verified at the state level (Clark, 2012). However, other researchers report evidence that only the executive branch can significantly affect the macroeconomic performance and the legislative branch does not have significant economic influence (Snowberg, Wolfers and Zitzewitz, 2006, 2007; Blinder and Watson, 2015). Since Congress has two independent chambers, the literature essentially leaves following interesting issue to investigate: Do the two partisan chambers of Congress share the equal economic influence?

To advance the research on relationships between partisan government institutions and macroeconomic performance, this study uses He's (2019) assessment ratio, $(\frac{realGDP}{GDPtrend}/\sigma_{inflation})$, which reflects the Fed's dual policy goal (economic growth and price stability) as the overall economic performance or strength measure, in addition to some individual statistics, to analyze differences in macroeconomic performance and effectiveness of monetary and fiscal policy tools under three partisan government institutions: the White House (U.S. Presidency), the U.S. House of Representatives, and the U.S. Senate.

Empirical evidence reported by He (2019) suggest that the assessment ratio is an effective measure of overall economic performance. The result is consistent with the following arguments and facts: 1. inflation level represents expected inflation which is reflected in the numerator of the ratio, GDP gap, which is derived from the inflation-adjusted real GDP. 2. The standard deviation of inflation represents unexpected inflation or the volatility of inflation that plays a critical role in shaping short-term inflation expectation, which is also a major policy focus. 3. Empirical evidence that the standard deviation of inflation has greater impacts on some macroeconomic variables than the inflation level supports the notion that the volatility of inflation "may cause big shocks in prices and turmoil in some sections of the economy and then substantial changes in business decisions and consumer behavior" (He, 2019). Therefore, the use of the standard deviation of inflation as the denominator of the assessment ratio is well justified.

According to Gerber and Huber (2009, 2010), real economic behavior is consistent with partisan differences in perceptions or assessment of the economic competence of the parties. Therefore, policy-makers, consumers, and business communities may benefit from the results of this study.

2. Method and Data

The purpose of this study is to examine differences in economic performance and policy effectiveness under three different partisan government institutions. Specifically, comparisons are made between Democratic and Republican presidencies, as well as the two partisan legislative chambers, the U.S. House of Representatives and the U.S. Senate. The impacts of monetary and fiscal policies on key economic performance measures are analyzed to assess the effectiveness of policies in various subsamples used in comparisons. The overall sample period is 1955-2016. The summary of the three partisan government institutions is provided in Appendix A.

According to the Fed, the focus of monetary policy is to influence the monetary and credit conditions in the economy "in pursuit of maximum employment, stable prices, and moderate long-term interest rates" (Board of Governors of the Federal Reserve System, 2009). The pursuit of both price stability and economic growth has been the top monetary policy goal for decades. To assess the policy effectiveness, He (2017, 2019) creates an assessment ratio which reflects both long-term GDP growth and variability of inflation. Similar to He (2019), this study calculates annual assessment ratios, $(\frac{realGDP}{GDPtrend}/\sigma_{inflation})$, to quantify the price volatility-adjusted long-term growth potential which reflects the overall economic performance. In addition, this study uses the following more traditional measures to assess different aspects of economy: long-term GAP growth (annual average of quarterly annual ratios of real GDP/trend), annual GDP growth (annual average of quarterly annual changes in real GDP), inflation rate (annual average of quarterly annual changes in CPI), and volatility of inflation (annual population standard deviation of quarterly annual changes in CPI).

In order to examine the effectiveness of monetary and fiscal policy tools, this study performs the following simple regression analysis:

$$Performance\ Measure = \alpha_0 + \alpha_1 FUNDS + \alpha_2 FISCAL + \mu,$$

Where five performance measures used as dependent variable include:
ASSESS=assessment ratio, $(\frac{realGDP}{GDPtrend}/\sigma_{inflation})$,
GDPGAP=annual average of quarterly annual ratios of real GDP/trend,
GDPRATE= annual average of quarterly annual changes in real GDP,
INF=inflation, annual average of quarterly annual changes in CPI,
SDINF=annual population standard deviation of quarterly annual changes in CPI,
FUNDS=the annual average of monthly federal effective funds rates.
FISCAL=annual percentage ratio of the federal surplus (+) or deficit (-) to GDP.

This study uses the following Fed public data series:
Real gross domestic product is the inflation-adjusted value of the goods and services produced by labor and property located in the United States, quarterly, billions of chained 2009 dollars (1947-2016). GDP growth rate is the annual average of quarterly annual changes in real GDP. Long-term growth measure with GDP gap is the annual average of quarterly annual ratios of real GDP/long-term trend. The long-term trend is extracted from the entire series (1947.1-2016.4) by Hodrick-Prescot filter (1997) with lambda=1600 for quarterly series (Ravn and Uhlig, 2002).

Consumer Price Index for all urban consumers: all items, index 1982-1984=100, monthly, seasonally adjusted (1954-2016). In order to be consistent with quarterly GDP data, Inflation level is the annual average of quarterly annual changes in CPI. Standard deviation of inflation is the annual population standard deviation of quarterly annual changes in CPI.

Effective federal funds rate, percent, monthly, not seasonally adjusted (1955-2016). Annual funds

rate is the annual average of monthly funds rates, which is the proxy for monetary policy.

Federal surplus or deficit [-] as percent of gross domestic product, percent of GDP, annual, not seasonally adjusted (1954-2016). Fiscal policy tool is represented by the annual percentage ratio of the federal surplus or deficit (-) to GDP.

Effective federal funds rate starts in 1955 and is regarded as a powerful monetary policy tool. It is used by the Fed as a target rate for the Fed's open market operations for monetary policy changes, with lowering the target rate to promote economic expansion and hiking the rate to fight inflation. The availability of the funds rate dictates the sample period of 1955-2016 in this study.

3. Results

3.1. Economic performance and policy tools in different political conditions

In order to examine differences in economic performance and policy tools in different political scenarios, the mean for each of the seven variables in the regression model are calculated for the 28 years of Democratic presidents, the 34 years of Republican presidents, as well as the 44 years of the Democrat-controlled House and Senate, the 18 years of Republican-controlled House and Senate. The significance of differences is measured by t-statistics for equal-mean tests without assumption of equal variances.

Results in Table 1 indicate that the overall economic performance or the price volatility-adjusted long-term growth potential proxied with ASSESS is significantly higher under Democratic presidents. Specifically, both expected and unexpected inflation or price volatility are significantly lower, although both long-term and annual GDP growth rates are marginally higher. The better economic performance may be the result of the stimulating monetary policy. The average of effective funds rates under Democratic presidents is significantly lower, 3.93% vs. 5.80%. The results are in line with many previous findings based on the partisan theory that more liberal governments tend to lead to higher economic growth, due to their expansionary monetary and fiscal policies (Hibbs, 1977 and Potrafke, 2012)).

For the newly elected presidents exerting policy influence on economy may take some time, therefore, a one-year lag is applied to the data set. The results of the lagged data are summarized in Table 2. The Democratic presidents still economically outperform their Republican counterparts, in terms of significantly higher long-term GDP growth and lower inflation volatility, with even less stimulating policies. The difference in the funds rate under partisan presidencies is marginal while the fiscal deficit under Republican presidents is much deeper, FISCAL is -2.91 vs. -1.72 (Table 2). The result noticeably suggests the higher policy effectiveness under the Democratic presidents.

However, the impacts of the House of Representatives on economy are fundamentally different. The Democrats controlled the House for 44 years, in which all three growth-related measures are marginally lower, compared with those in 18 years under the Republican-controlled House. Furthermore, both expected and unexpected inflation rates are significantly higher under the Democrat-controlled House, despite the more hawkish monetary policy evidenced with the average of the funds rates of 5.84%, which is more than doubled of 2.80% under the Republican-controlled House. The higher funds rates may be the result of the independence of the Fed, that is, the House has no means to influence the Fed monetary policy. Instead, the House can shape the government spending in a very significant way. In fact, the fiscal policy is quite stimulating under the Democrat-controlled House, FISCAL is -2.65 vs. -1.75.

Table 1. Economic performance and policy tools in different political conditions

	D-Presidency (28 years)		R-Presidency (34 years)		
	Mean	St. Dev	Mean	St. Dev	t-statistic
ASSESS	3.2597	1.7667	2.3744	1.6503	2.0026**
GDPGAP	1.0009	0.0110	0.9994	0.0154	0.4507
GDPRATE	0.0341	0.0205	0.0284	0.0230	1.0451
INF	0.0311	0.0311	0.0407	0.0247	-1.3225
SDINF	0.0043	0.0030	0.0064	0.0041	-2.3318**
FUNDS	0.0393	0.0334	0.0580	0.0351	-2.1347**
FISCAL	-1.9972	2.6028	-2.7121	2.1006	1.1725
	D-House (44 years)		R-House (18 years)		
	Mean	St. Dev	Mean	St. Dev	t-statistic
ASSESS	2.6657	1.7132	3.0393	1.8503	-0.7371
GDPGAP	1.0000	0.0153	1.0001	0.0082	-0.0333
GDPRATE	0.0319	0.0251	0.0287	0.0114	0.6844
INF	0.0419	0.0311	0.0227	0.0087	3.7514***
SDINF	0.0060	0.0042	0.0042	0.0020	2.1536**
FUNDS	0.0584	0.0356	0.0280	0.0242	3.8821***
FISCAL	-2.6506	2.3719	-1.7503	2.2242	-1.4187
	D-Senate (44 years)		R-Senate (18 years)		
	Mean	St. Dev	Mean	St. Dev	t-statistic
ASSESS	2.6159	1.5878	3.1610	2.0863	-0.9967
GDPGAP	1.0004	0.0138	0.9992	0.0133	0.3160
GDPRATE	0.0297	0.0234	0.0341	0.0182	-0.8012
INF	0.0381	0.0301	0.0321	0.0221	0.8687
SDINF	0.0058	0.0040	0.0047	0.0031	1.0659
FUNDS	0.0454	0.0318	0.0596	0.0421	-1.2792
FISCAL	-2.5104	2.3489	-2.0931	2.3873	-0.6277

D=Democrat and R=Republican.
ASSESS=assessment ratio, $(\frac{realGDP}{GDPtrend}/\sigma_{inflation})$.
GDPGAP=annual average of quarterly annual ratios of real GDP/trend.
GDPRATE= annual average of quarterly annual changes in real GDP.
INF=inflation, annual average of quarterly annual changes in CPI.
SDINF=annual population standard deviation of quarterly annual changes in CPI.
FUNDS=the annual average of monthly federal effective funds rates.
FISCAL=annual percentage ratio of the federal surplus (+) or deficit (-) to GDP.
t-statistics are for equal-mean tests without assumption of equal variances.
*** represents the 1% significance level, and ** represents the 5% significance level.

The result suggests that the Democratic House exercises its "power of the purse" to stimulate economic growth. However, the more deficit spending does not effectively promote growth, but compromises the effectiveness of the tight monetary policy on curbing inflation and price volatility. That is why both expected and unexpected inflation is much higher but growth is moderate under the Democrat-controlled House.

Results of the one-year lagged data (Table 2) paint an even bleaker picture of coexistence of Stagflation and conflicting monetary and fiscal policies under the Democrat-controlled House. All three measures of growth are lower, though not statistically significant, and inflation and price volatility are significantly higher, combined with the stiffer monetary policy and more loose fiscal policy. The policy differences under two partisan Houses are statistically significant.

There are no significant differences in economic performance and policies between the Democrat- and Republican-controlled Senate. The results suggest that the Senate has less policy influence than the House.

Table 2. Economic performance and policy tools in different political conditions with a one-year lag

	D-Presidency (27 years)		R-Presidency (35 years)		
	Mean	St. Dev	Mean	St. Dev	t-statistic
ASSESS	3.1663	1.7602	2.4717	1.7001	1.5636
GDPGAP	1.0031	0.0095	0.9977	0.0157	1.6739*
GDPRATE	0.0353	0.0175	0.0277	0.0246	1.4185
INF	0.0354	0.0332	0.0371	0.0235	-0.2282
SDINF	0.0043	0.0026	0.0064	0.0043	-2.3536**
FUNDS	0.0474	0.0409	0.0512	0.0309	-0.4071
FISCAL	-1.7158	2.3340	-2.9088	2.2560	2.0247**
	D-House (44 years)		R-House (18 years)		
	Mean	St. Dev	Mean	St. Dev	t-statistic
ASSESS	2.7284	1.7430	2.8860	1.8026	-0.3155
GDPGAP	0.99895	0.0148	1.0027	0.0097	-1.1746
GDPRATE	0.0309	0.0243	0.0313	0.0151	-0.0813
INF	0.0427	0.0304	0.0209	0.0103	4.2074***
SDINF	0.0059	0.0042	0.0044	0.0021	1.8184*
FUNDS	0.0582	0.0361	0.0284	0.0229	3.8794***
FISCAL	-2.7828	2.3960	-1.4272	1.9708	-2.3038**
	D-Senate (44 years)		R-Senate (18 years)		
	Mean	St. Dev	Mean	St. Dev	t-statistic
ASSESS	2.7642	1.6138	2.7986	2.0890	-0.0626
GDPGAP	0.9995	0.0134	1.0014	0.0141	-0.4903
GDPRATE	0.0291	0.0222	0.0356	0.0211	-1.0811
INF	0.0396	0.0316	0.0284	0.0134	1.9530*
SDINF	0.0055	0.0040	0.0054	0.0032	0.1162
FUNDS	0.0468	0.0372	0.0561	0.0304	-1.0242
FISCAL	-2.6251	2.3015	-1.8126	2.4273	-1.1243

D=Democrat and R=Republican.
ASSESS=assessment ratio, $(\frac{realGDP}{GDPtrend}/\sigma_{inflation})$.
GDPGAP=annual average of quarterly annual ratios of real GDP/trend.
GDPRATE= annual average of quarterly annual changes in real GDP.
INF=inflation, annual average of quarterly annual changes in CPI.
SDINF=annual population standard deviation of quarterly annual changes in CPI.
FUNDS=the annual average of monthly federal effective funds rates.
FISCAL=annual percentage ratio of the federal surplus (+) or deficit (-) to GDP.
t-statistics are for equal-mean tests without assumption of equal variances.
*** represents the 1% significance level, and ** represents the 5% significance level.

3.2. Effectiveness of policy tools under two partisan presidencies

The regression model described in the Method and Data section is performed to assess the effectiveness of monetary and fiscal policy tools on five economic performance measures, ASSESS, GDPGAP, GDPRATE, INF, and SDINF, under different partisan presidencies.

The better overall economic performance under Democratic administrations is the result of effective monetary and fiscal policies, as suggested by the regression results presented in Table 3. Both FUNDS and FISCAL have great impacts on ASSESS, a proxy for the overall economic performance, and the two-factor model can explain 34.6% of variation in ASSESS. The 85.3% of variation in inflation (INF) and 58.4% of changes in unexpected inflation (SDINF) can be explained by the two policy tools. However, FUNDS can significantly affect the long-term GDP growth (GDPGAP) only, on the other hand, the significant impact of FISCAL is limited to annual growth rate (GDPRATE). The above results are held when the one-year lagged data is used (Table 4).

Table 3. Effectiveness of policy tools under two partisan presidencies

D-Presidency (28 years)				
Dependent Variable	Intercept	FUNDS	FISCAL	R^2
ASSESS	4.917	-19.680	0.442	0.346
	(8.16)***	(-2.06)**	(3.60)***	
GDPGAP	0.997	0.149	0.001	0.328
	(261.0)***	(2.46)**	(1.11)	
GDPRATE	0.048	-0.062	0.006	0.477
	(7.68)***	(-0.62)	(4.52)***	
INF	-0.016	0.958	-0.005	0.853
	(-3.24)***	(12.01)***	(-4.73)***	
SDINF	0.000	0.055	-0.001	0.584
	(0.33)	(4.24)***	(-5.60)***	
R-Presidency (34 years)				
Dependent Variable	Intercept	FUNDS	FISCAL	R^2
ASSESS	2.566	-0.060	0.070	0.008
	(4.12)***	(-0.01)	(0.48)	
GDPGAP	1.003	0.047	0.002	0.107
	(181.5)***	(0.61)	(1.92)*	
GDPRATE	0.037	0.050	0.004	0.152
	(4.67)***	(0.44)	(2.35)**	
INF	0.009	0.484	-0.001	0.532
	(1.39)	(5.39)***	(-0.92)	
SDINF	0.005	0.007	-0.001	0.092
	(3.10)***	(0.33)	(-1.59)	

D=Democrat and R=Republican.

ASSESS=assessment ratio, $(\frac{realGDP}{GDPtrend}/\sigma_{inflation})$.

GDPGAP=annual average of quarterly annual ratios of real GDP/trend.

GDPRATE= annual average of quarterly annual changes in real GDP.

INF=inflation, annual average of quarterly annual changes in CPI.

SDINF=annual population standard deviation of quarterly annual changes in CPI.

FUNDS=the annual average of monthly federal effective funds rates.

FISCAL=annual percentage ratio of the federal surplus (+) or deficit (-) to GDP.

t-values are in parentheses.

*** represents the 1% significance level, ** represents the 5% significance level, and * represents the 10% significance level.

Table 4. Effectiveness of policy tools under two partisan presidencies with a one-year lag

D-Presidency (27 years)				
Dependent Variable	Intercept	FUNDS	FISCAL	R^2
ASSESS	4.592 (8.39)***	-15.735 (-2.10)**	0.397 (3.02)***	0.317
GDPGAP	0.999 (320.2)***	0.101 (2.36)**	0.001 (0.73)	0.235
GDPRATE	0.045 (8.29)***	-0.057 (-0.77)	0.004 (3.28)***	0.310
INF	-0.009 (-1.92)*	0.769 (11.83)***	-0.005 (-4.11)***	0.855
SDINF	0.001 (2.05)**	0.040 (4.42)***	-0.001 (-3.70)***	0.529
R-Presidency (35 years)				
Dependent Variable	Intercept	FUNDS	FISCAL	R^2
ASSESS	2.679 (4.12)***	3.130 (0.32)	0.126 (0.95)	0.029
GDPGAP	1.002 (176.5)***	0.054 (0.64)	0.003 (2.23)**	0.136
GDPRATE	0.038 (4.70)***	0.124 (1.03)	0.006 (3.48)***	0.278
INF	0.010 (1.45)	0.499 (4.90)***	-0.001 (-0.41)	0.443
SDINF	0.004 (2.65)***	0.004 (0.20)	-0.001 (-2.24)**	0.143

D=Democrat and R=Republican.
ASSESS=assessment ratio, $(\frac{realGDP}{GDPtrend}/\sigma_{inflation})$.
GDPGAP=annual average of quarterly annual ratios of real GDP/trend.
GDPRATE= annual average of quarterly annual changes in real GDP.
INF=inflation, annual average of quarterly annual changes in CPI.
SDINF=annual population standard deviation of quarterly annual changes in CPI.
FUNDS=the annual average of monthly federal effective funds rates.
FISCAL=annual percentage ratio of the federal surplus (+) or deficit (-) to GDP.
t-values are in parentheses.
*** represents the 1% significance level, ** represents the 5% significance level, and * represents the 10% significance level.

Regression results reveal much weaker effectiveness of the monetary policy under Republican presidents. FUNDS does not have significant influence on all key variables but INF, while FISCAL not only exercises the important impact on GDPRATE, but also gains marginal significant influence on GDPGAP (Table 3). The one-year delayed data adds nothing but a significant effect of FISCAL on SDINF (Table 4).

3.3. Effectiveness of policy tools under two partisan legislative chambers

The two policy tolls, FUNDS and FISCAL, once again to regress against five performance variables, ASSESS, GDPGAP, GDPRATE, INF, and SDINF, to examine the effectiveness of policy tools under two partisan legislative chambers.

The Democrat-controlled House tends to use fiscal policy more effective than monetary policy. FISCAL has powerful influence on both long- and short-term growth rates represented by GDPGAP and GDPRATE, respectively, as well as price volatility proxied with SDINF (Table 5). While FUNDS, as a monetary policy tool, exercises great impact on expected inflation only.

Table 5. Effectiveness of policy tools under Democrat- or Republican-controlled House

D-House (44 years)				
Dependent Variable	Intercept	FUNDS	FISCAL	R^2
ASSESS	3.697	-9.755	0.174	0.106
	(6.75)***	(-1.37)	(1.63)	
GDPGAP	1.001	0.087	0.002	0.153
	(210.2)***	(1.40)	(2.42)**	
GDPRATE	0.048	-0.023	0.006	0.289
	(6.74)***	(-0.24)	(4.05)***	
INF	-0.000	0.692	-0.001	0.636
	(-0.06)	(8.31)***	(-0.58)	
SDINF	0.003	0.023	-0.001	0.204
	(2.22)**	(1.38)	(-2.84)***	
R-House (18 years)				
Dependent Variable	Intercept	FUNDS	FISCAL	R^2
ASSESS	3.640	1.141	0.361	0.200
	(2.43)**	(0.36)	(1.04)	
GDPGAP	1.006	-0.065	0.002	0.214
	(153.2)***	(-0.46)	(1.47)	
GDPRATE	0.036	-0.008	0.004	0.581
	(5.37)***	(-0.05)	(2.56)**	
INF	0.003	0.463	-0.004	0.526
	(0.63)	(3.98)***	(-2.84)***	
SDINF	0.002	0.035	-0.001	0.170
	(1.28)	(0.97)	(-1.62)	

D=Democrat and R=Republican.
ASSESS=assessment ratio, $(\frac{realGDP}{GDPtrend}/\sigma_{inflation})$.
GDPGAP=annual average of quarterly annual ratios of real GDP/trend.
GDPRATE= annual average of quarterly annual changes in real GDP.
INF=inflation, annual average of quarterly annual changes in CPI.
SDINF=annual population standard deviation of quarterly annual changes in CPI.
FUNDS=the annual average of monthly federal effective funds rates.
FISCAL=annual percentage ratio of the federal surplus (+) or deficit (-) to GDP.
t-values are in parentheses.
*** represents the 1% significance level, ** represents the 5% significance level, and * represents the 10% significance level.

On the other hand, the Republican-controlled House shows a different policy orientation, that is, to fight inflation more seriously. The regression results in Table 5 show that expected inflation, INF, is affected significantly by both FUNDS and FISCAL. The result is consistent with the fact that inflation and price volatility are higher under the Democrat-controlled House than the Republican one. Furthermore, the significant effect of FISCAL extends from INF to GDPRATE, the annual output growth rate, under the Republican-controlled House.

Results of the one-year delayed data bolster the above findings. Price volatility (SDINF), in addition to INF, is now significantly affected by both FISCAL and FUNDS under the Republican-controlled House (Table 6). The similar policy impacts are found on GDPRATE. The one-year delayed data does not change the effectiveness of monetary policy, but enhance that of fiscal policy under the Democrat-controlled House. The significant impact of FUNDS is only on INF. However, the significant influence of FISCAL extends to ASSESS, the overall economic performance measure.

Table 6. Effectiveness of policy tools under Democrat- or Republican-controlled House with a one-year lag

D-House (44 years)				
Dependent Variable	Intercept	FUNDS	FISCAL	R^2
ASSESS	3.922	-10.02	0.220	0.130
	(6.87)***	(-1.42)	(2.07)**	
GDPGAP	0.999	0.091	0.002	0.147
	(208.0)***	(1.52)	(2.13)**	
GDPRATE	0.046	-0.016	0.005	0.260
	(6.28)***	(-0.18)	(3.80)***	
INF	0.002	0.655	-0.001	0.607
	(0.27)	(7.94)***	(-0.81)	
SDINF	0.002	0.025	-0.001	0.210
	(1.84)*	(1.56)	(-2.96)***	
R-House (18 years)				
Dependent Variable	Intercept	FUNDS	FISCAL	R^2
ASSESS	3.846	-10.666	0.460	0.173
	(3.20)**	(-0.40)	(1.47)	
GDPGAP	1.002	0.086	0.001	0.151
	(153.0)***	(0.59)	(0.62)	
GDPRATE	0.051	-0.290	0.008	0.652
	(7.84)***	(-1.99)*	(4.82)***	
INF	0.001	0.500	-0.004	0.590
	(0.25)	(4.62)***	(-3.01)***	
SDINF	0.002	0.054	-0.001	0.261
	(1.40)	(1.88)*	(-2.28)**	

D=Democrat and R=Republican.
ASSESS=assessment ratio, $(\frac{realGDP}{GDPtrend}/\sigma_{inflation})$.
GDPGAP=annual average of quarterly annual ratios of real GDP/trend.
GDPRATE= annual average of quarterly annual changes in real GDP.
INF=inflation, annual average of quarterly annual changes in CPI.
SDINF=annual population standard deviation of quarterly annual changes in CPI.
FUNDS=the annual average of monthly federal effective funds rates.
FISCAL=annual percentage ratio of the federal surplus (+) or deficit (-) to GDP.
t-values are in parentheses.
*** represents the 1% significance level, ** represents the 5% significance level, and * represents the 10% significance level.

Both monetary and fiscal policies are more effective under the Democrat-controlled Senate than Republican one. FISCAL can greatly affect ASSESS, GDPRATE, INF, SDINF, but GDPGAP, under the Democrat-controlled Senate; while it can only meaningfully affect GDPGAP under the Republican-controlled Senate (Table 7). Similarly, FUNDS has significant impact on INF only, compared to its significant impacts on GDPGAP, INF, and SDINF under the Democrat-controlled Senate. The one-year delayed data makes the contrast plainer. While FISCAL maintains the critical influence on 4 key economic variables under the Democrat-controlled Senate, it loses its single significant impact on GDPGAP under the Republican-controlled Senate (Table 8). There is no change in effectiveness of FUNDS under the Republican-controlled Senate, however, FUNDS expands its significant influence to ASSESS under the Democratic one.

Table 7. Effectiveness of policy tools under Democrat- or Republican-controlled Senate

D-Senate (44 years)				
Dependent Variable	Intercept	FUNDS	FISCAL	R^2
ASSESS	3.74	-11.269	0.243	0.146
	(7.30)***	(-1.53)	(2.44)**	
GDPGAP	0.997	0.144	0.001	0.201
	(231.9)***	(2.33)**	(1.65)	
GDPRATE	0.048	-0.068	0.006	0.373
	(7.48)***	(-0.73)	(4.93)***	
INF	-0.008	0.845	-0.003	0.766
	(-1.59)	(11.57)***	(-3.12)***	
SDINF	0.002	0.041	-0.001	0.277
	(1.55)	(2.45)**	(-3.56)***	
R-Senate (18 years)				
Dependent Variable	Intercept	FUNDS	FISCAL	R^2
ASSESS	3.820	-1.552	0.271	0.104
	(4.24)***	(-0.12)	(1.19)	
GDPGAP	1.005	-0.012	0.002	0.201
	(185.0)***	(-0.16)	(1.76)*	
GDPRATE	0.037	0.029	0.002	0.087
	(4.73)***	(0.26)	(1.19)	
INF	0.005	0.437	-0.001	0.746
	(0.90)	(6.02)***	(-0.56)	
SDINF	0.003	0.021	-0.000	0.220
	(2.12)**	(1.16)	(-1.19)	

D=Democrat and R=Republican.
ASSESS=assessment ratio, $(\frac{realGDP}{GDPtrend}/\sigma_{inflation})$.
GDPGAP=annual average of quarterly annual ratios of real GDP/trend.
GDPRATE= annual average of quarterly annual changes in real GDP.
INF=inflation, annual average of quarterly annual changes in CPI.
SDINF=annual population standard deviation of quarterly annual changes in CPI.
FUNDS=the annual average of monthly federal effective funds rates.
FISCAL=annual percentage ratio of the federal surplus (+) or deficit (-) to GDP.
t-values are in parentheses.
*** represents the 1% significance level, ** represents the 5% significance level, and * represents the 10% significance level.

Table 8. Effectiveness of policy tools under Democrat- or Republican-controlled Senate with a one-year lag

D-Senate (44 years)				
Dependent Variable	Intercept	FUNDS	FISCAL	R^2
ASSESS	4.049 (8.35)***	-11.788 (-1.89)*	0.279 (2.78)***	0.190
GDPGAP	0.997 (248.5)***	0.128 (2.50)**	0.001 (1.49)	0.201
GDPRATE	0.046 (7.75)***	-0.036 (-0.47)	0.006 (4.73)***	0.356
INF	-0.003 (-0.63)	0.761 (11.76)***	-0.003 (-2.59)***	0.771
SDINF	0.002 (1.44)	0.036 (2.49)**	-0.001 (-3.56)***	0.281
R-Senate (18 years)				
Dependent Variable	Intercept	FUNDS	FISCAL	R^2
ASSESS	2.384 (2.27)**	19.394 (1.01)	0.372 (1.55)	0.140
GDPGAP	1.013 (157.4)***	-0.156 (-1.33)	0.002 (1.13)	0.294
GDPRATE	0.038 (3.56)***	0.054 (0.27)	0.003 (1.32)	0.116
INF	0.010 (2.36)**	0.269 (3.31)***	-0.002 (-1.53)	0.627
SDINF	0.004 (2.69)**	0.003 (0.11)	-0.001 (-1.48)	0.178

D=Democrat and R=Republican.
ASSESS=assessment ratio, $(\frac{realGDP}{GDPtrend}/\sigma_{inflation})$.
GDPGAP=annual average of quarterly annual ratios of real GDP/trend.
GDPRATE= annual average of quarterly annual changes in real GDP.
INF=inflation, annual average of quarterly annual changes in CPI.
SDINF=annual population standard deviation of quarterly annual changes in CPI.
FUNDS=the annual average of monthly federal effective funds rates.
FISCAL=annual percentage ratio of the federal surplus (+) or deficit (-) to GDP.
t-values are in parentheses.
*** represents the 1% significance level, ** represents the 5% significance level, and * represents the 10% significance level.

4. Conclusions

This study examines economic performance and effectiveness of monetary and fiscal policies under three different partisan government institutions with the assessment ratio, $(\frac{realGDP}{GDPtrend}/\sigma_{inflation})$, which reflects the Fed's dual policy goal (economic growth and price stability) as the overall economic performance measure, along with four other economic performance measures: long-term GAP growth, annual GDP growth, inflation rate, and volatility of inflation. The following are major empirical findings of this study.

First, the overall economic performance or strength measured by the assessment ratio is significantly higher under the Democratic presidents than the Republican ones. Particularly, both expected inflation and unexpected price volatility are substantially lower, meantime, the long-term and annual GDP growth rates are still marginally higher. On the other hand, the monetary policy is more expansionary under the Democratic presidents. The results are in line with many previous findings (Hibbs, 1977; Potrafke, 2012). While fiscal deficits are deeper when the Republicans occupy the White House, but the expansionary fiscal policy does not result in high GDP growth and better overall economic performance.

Second, regression results indicate that both monetary and fiscal policies can directly promote the assessment ratio, a general economic strength indicator, under the Democratic presidents. When the Republicans hold the executive power, the policy effectiveness is much weaker, neither policies can significantly improve the overall economic performance. The impact of policies is limited to some aspects of the economy, such as the annual and long-term output growth and expected inflation.

Third, the economic performance and policy effectiveness under the Democratic House is weaker than that under the Republican one. The tighter (not expansionary) monetary and stimulating fiscal policies under the Democratic House do not lead to a higher assessment ratio, instead, much higher inflation and price volatility, as well as a marginally lower assessment ratio.

Fourth, the fiscal policy is more effective than the monetary policy to promote output growth and even the overall economic performance when the Democrats control the House. While the policy orientation of the Republican-controlled House is different, the policies are used to mainly fight inflation and promote short-term output growth.

Fifth, although economic performance is only marginally better under the Democratic Senate, both monetary and fiscal policies are more effective, compared to the Republican one.

This study uses the annual average of monthly federal effective funds rate as the proxy for monetary policy to analyze its effectiveness. It may be interesting to use the number of times the Fed engaged in expansionary or contractionary policies to examine policy effectiveness under different political scenarios. However, it is beyond the scope of this study and left for future studies.

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Appendix A. Institutions controlled by the Democrats (D) or Republican (R): 1955-2016

Year	House	# of years
1955-1994	D	40
1995-2006	R	12
2007-2010	D	4
2011-2016	R	6

Year	Senate	# of years
1955-1980	D	26
1981-1986	R	6
1987-1994	D	8
1995-2000	R	6
2001-2002*	D	2
2003-2006	R	4
2007-2014	D	8
2015-2016	R	2

*During 2001 the majority in the Senate changed several times, however, the Democrats maintained the majority for the most time of the year.

Year	White House	# of years	Name of the president
1955-1960	R	6	D. Eisenhower
1961-1968	D	8	J.F. Kennedy & L. B. Johnson
1969-1976	R	8	R. Nixon & G. Ford
1977-1980	D	4	J. Carter
1981-1992	R	12	R. Reagan & G. Bush
1993-2000	D	8	B. Clinton
2001-2008	R	8	G.W. Bush
2009-2016	D	8	B. Obama