



## Question

What effects do political parties of policymakers in the U.S. Senate, House of Representatives, and Presidency have on government spending and inflation?

This project analyzes patterns and trends using a vector autoregressive (VAR) modeling technique to determine this correlation from 1960 to present, with political parties in control of each branch of the government introduced as exogenous shocks to the system. The core variables utilized for this project include real government consumption expenditures and domestic investment (as government spending), consumer price index (as inflation), output gap calculated from potential gross domestic product and real gross domestic product (to represent fluctuations in the business cycle), and the federal funds rate (to model interest rate fluctuations over time).

Broader conclusions about the impact of political regimes on the economic variables listed above can be drawn from this analysis as well. The core purpose of this project is to determine whether a given political party being in charge of a certain branch of the government has an impact on important economic indicators as measured over an extended period of time.

Though the particular variables of interest for the project were government spending and inflation, an examination of the impact of these exogenous shocks on the other variables aforementioned will be just as important in terms of macroeconomic analysis.

## Methods

This project uses a vector autoregressive (VAR) model in order to examine correlations between the growth rate of government spending (gg), the national output gap (x), inflation ( $\pi$ ), and interest rates (i) with binary variables of political party control (R = 1) for the office of the President, the House of Representatives, and the Senate introduced as exogenous shocks.

The number of lags chosen for this model is chosen by the minimum AIC value (the maximum considered was 6 quarterly lags in order to capture the average full business cycle). An expression of this model for the government spending variable is represented below.

$$Y_t = \alpha + \delta Y_{t-1} + \theta Z_t + \epsilon_t$$

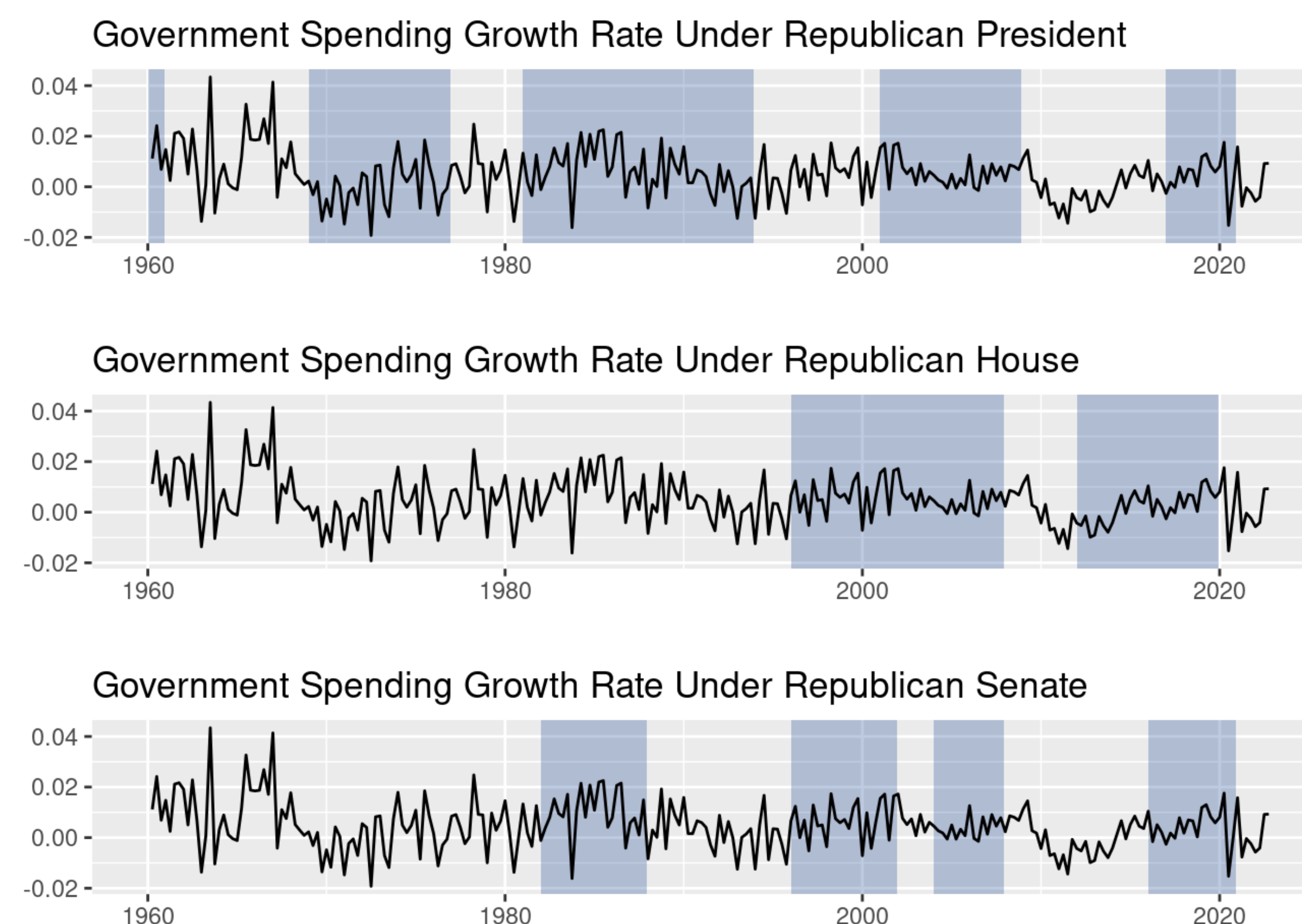
where

$$Y_t = \begin{bmatrix} gg_t \\ x_t \\ \pi_t \\ i_t \end{bmatrix} \quad \text{and} \quad Z_t = \begin{bmatrix} president_t \\ house_t \\ senate_t \end{bmatrix}$$

The VAR modeling process allows for an examination of the effects of these variables on one another at prior-quarter lags, while at the same time accounting for the impact of political regimes as exogenous shocks to the system.

## Data

The figure below represents the effects of Republican political regime control in the Presidency, House of Representatives and U.S. Senate on the government spending growth rate over time. The bars visualized in the figures represent the periods of time for which the Republican party maintained control of the corresponding branch.



The core conclusion of the data visualized above is that political regime has little to do with changes to the growth rate of government spending in the presidency and the House of Representatives, with a Republican-controlled Senate leading to a slight increase (approximately .004%) which is significant at the 5% level.

## Conclusion

The core conclusions of this data analysis are that government spending growth rate is not affected at any reasonably statistically significant level by political parties as exogenous shocks in the House of Representatives or presidency, while a Republican-controlled Senate has led to a .004% increase since 1960.

Tangentially, this VAR demonstrates that a Republican president leads to a .26% lower federal funds rate on average, and a Republican-controlled House of Representatives leads to a lower rate of inflation by about 1/3 of a percent annually on average.

All of the correlations above are statistically significant at the 5% level. Republican control/occupancy of any of the three branches does not have any statistically significant impact on fluctuations in the business cycle represented by the output gap.

## Results

Table 1: VAR Estimation Results

	Dependent variable:			
	gg <sub>t</sub>	i <sub>t</sub>	$\pi_t$	x <sub>t</sub>
	(1)	(2)	(3)	(4)
gg <sub>t-1</sub>	0.084 (0.064)	-7.368 (5.834)	-7.203 (4.899)	-4.307 (7.106)
x <sub>t-1</sub>	0.0004 (0.0003)	0.086*** (0.025)	0.107*** (0.021)	0.867*** (0.031)
$\pi_{t-1}$	-0.001 (0.0003)	0.069** (0.031)	0.933*** (0.026)	-0.042 (0.038)
i <sub>t-1</sub>	0.0002 (0.0003)	0.921*** (0.029)	0.030 (0.024)	-0.033 (0.035)
Drift	0.008*** (0.002)	0.428** (0.186)	0.162 (0.156)	0.682*** (0.227)
Trend	-0.00002* (0.00001)	-0.001 (0.001)	0.003*** (0.001)	-0.004*** (0.001)
President(R)	-0.001 (0.001)	-0.261** (0.118)	-0.160 (0.099)	-0.215 (0.144)
House(R)	-0.001 (0.002)	-0.194 (0.174)	-0.340** (0.146)	0.217 (0.212)
Senate(R)	0.004** (0.002)	0.264 (0.166)	-0.059 (0.140)	0.152 (0.203)
Adjusted R <sup>2</sup>	0.089	0.948	0.938	0.819
Residual Std. Error (df = 242)	0.009	0.841	0.706	1.025
F Statistic (df = 8; 242)	4.041***	570.625***	475.170***	142.356***
Note:	<i>p</i> < 0.1; <i>p</i> < 0.05; <i>p</i> < 0.01			

## References

Apple, George. (2023). "In Control." The Spokesman Review. Retrieved from <https://www.spokesman.com/stories/2020/jun/25/control-house-and-senate-1900/>