Impact of China's Economic Policy Uncertainty on Inflation Rate

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Abstract. Although a decrease in the rate of Chinese inflation happens, it will still be higher than it was before the global financial crisis. The international economy will continue to deteriorate in 2022 due to geopolitical tensions and the slowdown in global economic development and will experience a small recession in 2023. Studies show that the EPU (economic policy uncertainty) index strongly explains large changes in equity markets like the S&P 500 and has an inverse relationship with real macroeconomic variables like employment and economic growth. The rate of inflation might be impacted. Research on the relationship between the index of economic policy uncertainty and the inflation rate is scant. In an effort to assist government agencies in making decisions, this study, which is based on a VAR model, examines the relationship between the index of economic policy uncertainty and the rate of inflation. We find that economic policy uncertainty has a small impact on the inflation rate, but the inflation rate can increase the economic policy uncertainty index.

1 Introduction

The global inflation rate is anticipated to decline, but it will still be higher than it was before the global financial crisis. Affected by the slowdown in global economic growth and geopolitical conflicts, the world economy will continue its slowdown trend in 2022, showing a mild recession in 2023. The outlook for trade is likewise not very hopeful. Overall, the world economy continues to face significant obstacles this year, but the adjustment process is also fostering momentum for recovery. Governments must support global economic recovery and multilateral cooperation to boost economic coordination. The promotion of domestic and foreign investment is the only way for Namibia's economic recovery, but the uncertainty of the government's economic policy will restrict Namibia's promotion of employment and growth.

The economic policy uncertainty index was created by Scott R. from Stanford University and the University of Chicago. Three academics-Baker, Nicholas Bloom, and Steven J. Davis-compiled a list that was primarily meant to illustrate the political and economic unpredictability of the major economies throughout the globe.

Their analysis demonstrates that the EPU index significantly explains major variations in equity markets like the S&P 500 and has an inverse association with actual macroeconomic factors like economic growth and employment. The News Index, which makes up the first part of the index, counts how many articles in 10 major American newspapers specifically address the subject of uncertain economic policy. The second component, the Tax Expiration Index, counts the number of tax laws that expire each year in order to gauge the likelihood that tax laws may change in the future. The Economic Forecaster Disagreement Index is the third component.

Several factors have an impact on the inflation rate. If the company has a significant increase in profits, it will also result in short-term inflation. The specific method is that the price of the commodity will keep rising in order to achieve larger profits. The quick increase will cause a temporary shortage of currency in society, which will eventually result in inflation.

There is little research on how the inflation rate is affected by the index of economic policy uncertainty. Based on a VAR model, this study investigates the relationship between the index of economic policy uncertainty and the rate of inflation in an effort to aid government agencies in making decisions.

2 Data

This article compiles the CPI and the monthly indicator of China's economic policy uncertainty from 2016 to 2023. The National Bureau of Statistics and the wind database provided the information. We chart the rate of inflation in China over time and the index of economic policy uncertainty in China. Figure 1 and Figure 2 show that there is a general pattern of the link between China's inflation rate (CPI) and the index of economic policy uncertainty in China.

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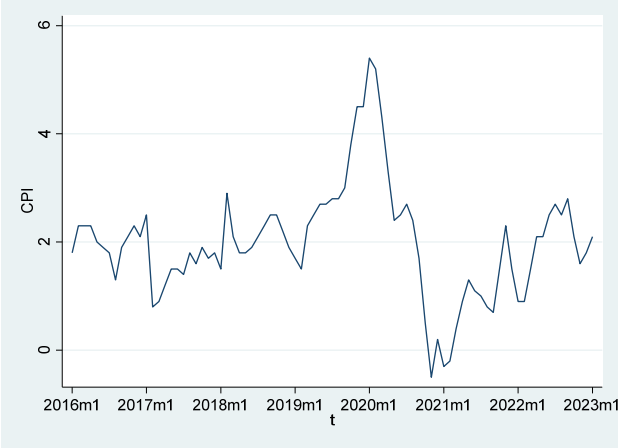

Fig 1. Inflation data from 2016 to 2023

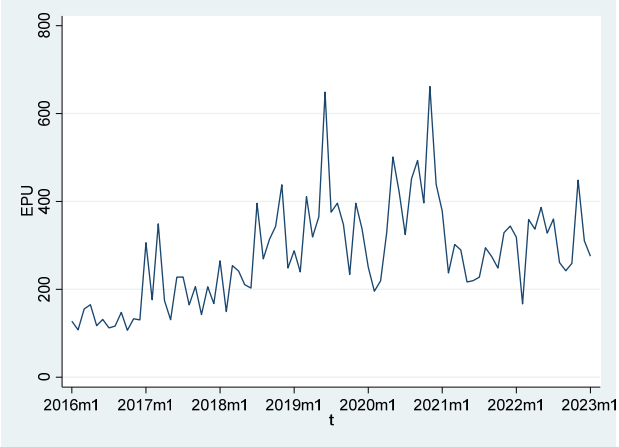

Fig 2. EPU data from 2016 to 2023

Table 1 includes descriptive data on the China inflation rate (CPI) and the China Economic Policy Uncertainty Index (EPU). Both the CPI and the indicator of China's economic policy uncertainty are determined to have positive means in this study. The average inflation rate in China is 1.996471%, and the standard deviation is 1.054068, which is smaller than the economic policy uncertainty index.

Table 1. descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
cpi	85	1.996471	1.054068	-0.5	5.4
epu	85	280.3318	115.5902	106.8	661.8

3 Method and Result Analysis

The vector autoregressive model (VAR model), often known as a non-structural equation model, was first introduced by Sims in 1980. The model is not based on economic theory and uses a multi-equation simultaneous style. By regressing the lagged items of all the endogenous independent variables, the endogenous variable estimates the dynamics of all the endogenous variables in each equation in the model. In order to forecast linked time series systems and analyze the dynamic effects of random shocks on variable systems, relationships are widely used.

The model provides a few benefits. It is remarkably simple. Users of the model don't care if a variable is endogenous or exogenous. All of the endogenous variables in the VAR model are present, and the model provides a thorough framework that can handle additional data aspects. By letting a variable's value to depend on both its own lag and the lag of other variables, the vector autoregressive model (VAR) transforms the univariate autoregressive model into the vector autoregressive model composed of multivariate time series variables;

The main purpose of this paper is to explore the impact of economic policy uncertainty on inflation rate, so as to provide decision-making for government departments. And it can help investors and residents to understand the market environment and political environment more clearly. We build a VAR model for research, the model is as follows.

Using Stata software, this study assesses the ideal lag order while accounting for FPE, AIC, HQIC, SBIC, and other variables. This analysis suggests that two orders of lag is the best choice. As a result, we use the index of Chinese economic policy uncertainty and the two-order lagged CPI for regression analysis (Table 2).

Table 2. The best lag order

lag	LL	LR	df	p	FPE	AIC	HQIC	SBIC
0	-618.453				15430.1	15.3198	15.3436	15.379
1	-540.766	155.37	4	0	2501.65	13.5004	13.5716	13.6778*
2	-534.127	13.278*	4	0.01	2344.4*	13.4352*	13.5538*	13.7308
3	-533.08	2.0938	4	0.719	2523.12	13.5081	13.6742	13.922
4	-532.004	2.1511	4	0.708	2714.71	13.5804	13.7938	14.1125

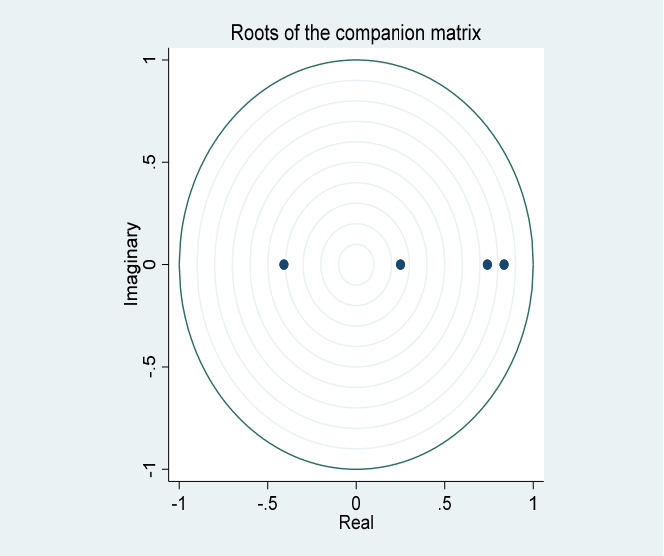

Fig 3. Unit root test for the result

A unit root test is then performed on the regression's findings. A unit root test is an evaluation of a time series variable to examine whether it is non-stationary. Depending on the test performed, the alternative hypothesis is either stationarity, trend stationarity, or explosive root, with the null hypothesis typically being the existence of a unit root. Figure 3 demonstrates the veracity of our findings by showing that we have verified the stability between various coefficients (all points are contained within the unit circle).

Table 3. The result of VAR model

	Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
			cpi			
cpi						
L1.	1.055869	0.108786	9.71	0	0.842653	1.269086
L2.	-0.19635	0.109056	-1.8	0.072	-0.4101	0.017394
epu						
L1.	1.09E-05	0.000585	0.02	0.985	-0.00114	0.001157
L2.	5.59E-05	0.000572	0.1	0.922	-0.00106	0.001177
_cons	0.259478	0.189348	1.37	0.171	-0.11164	0.630593
			epu			
cpi						
L1.	-23.701	19.27497	-1.23	0.219	-61.4793	14.07723
L2.	35.26743	19.32286	1.83	0.068	-2.60468	73.13954
epu						
L1.	0.361087	0.1036	3.49	0	0.158034	0.56414
L2.	0.311759	0.101304	3.08	0.002	0.113208	0.51031
_cons	71.93159	33.54914	2.14	0.032	6.176489	137.6867

Table 3 shows the research results of the VAR model. We found that economic policy uncertainty has less impact on inflation rate, and the effect of each unit of economic policy uncertainty is very subtle. But the inflation rate has a certain hysteresis effect, which can drive the future inflation rate.

The degree of economic policy uncertainty is also influenced by the pace of inflation. The economic policy uncertainty index, which can serve as a foundation for government departments' decision-making, can rise by 35.2 points for every 1% increase in inflation.

Table 4. Granger causality Wald tests

Equation	Excluded	chi2	df	Prob > chi2
cpi	epu	0.01853	2	0.991
epu	cpi	4.0212	2	0.03

The Granger causality test is a statistical method of hypothesis testing that determines if one set of time series is the cause of another set of time series. The basis of regression analysis is the autoregressive model. Granger causality discovery determines the distinction by a series of tests in the autoregressive model, as opposed to regression analysis, which normally can only obtain the correlation of one variable before and after another. The various variables exhibit time-drop relationships.

The correlation between the inflation rate and the economic policy uncertainty index is shown in Table 4. According to our findings, the inflation rate is the Granger cause of the economic policy uncertainty index

rather than the other way around. This serves to further validate the VAR model's findings.

The findings of the impulse response are shown in Figure 4, and we see that although the inflation rate has a favorable effect on the uncertainty of economic policy, it tends to stabilize after five stages. On the other hand, uncertainty in economic policy has little impact on inflation.

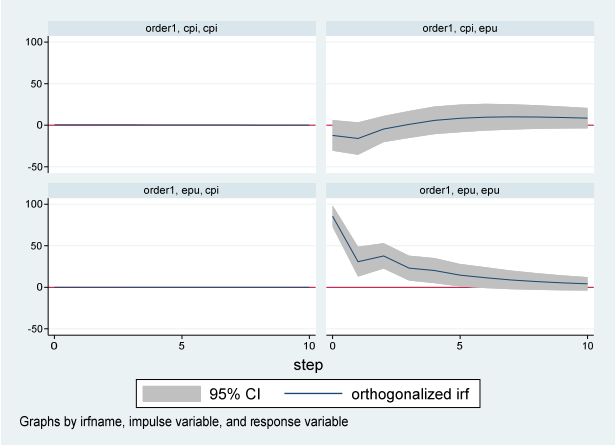

Fig 4. impulse response for CPI and EPU

4 Conclusion

Even though China's inflation rate has decreased, it will still be higher than it was before the global financial crisis. Due to geopolitical unrest and a slowdown in global economic growth, the global economy will continue to weaken in 2022 and enter a slight recession in 2023. Research demonstrates that the EPU index (economic policy uncertainty) strongly predicts significant fluctuations in equity markets, such as the S&P 500, and that it has an inverse relationship with actual macroeconomic factors, such as employment and economic growth. There may be an impact on the inflation rate.

This study, which is based on a VAR model, investigates the association between the index of economic policy uncertainty and the rate of inflation in an effort to aid government agencies in decision-making. We discover that the inflation rate has no bearing on economic policy uncertainty, but that the inflation rate can raise the index of economic policy uncertainty.

The paper also contains a variety of shortcomings. The employment of theoretical approaches was not heavily utilized in the investigation of the quantitative condition of the relationship between inflation and EPU. In the future, we would employ additional theoretical models to focus on the specific implications.

Appendix

The formula used in the article.

$$CPI_t = \alpha_{11} + \beta_{11} CPI_{t-1} + \beta_{12} CPI_{t-2} + \gamma_{11} EPU_{t-1} + \gamma_{12} EPU_{t-2}$$
$$EPU_t = \alpha_{21} + \beta_{21} CPI_{t-1} + \beta_{22} CPI_{t-2} + \gamma_{21} EPU_{t-1} + \gamma_{22} EPU_{t-2}$$

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