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# The Relationship between Economic Policy Uncertainty and Inflation in Japan: An Econometric Estimation For the Period (2000-2024)

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**Abstract:** This study examines the influence of Economic Policy Uncertainty (EPU) on inflation dynamics in Japan from 2000 to 2024. Employing cointegration and ARDL modeling techniques, the research reveals a statistically significant long-term relationship, where heightened economic uncertainty corresponds with increased inflationary pressures in the Japanese economy. Increases in EPU are associated with substantial rises in inflation rates, highlighting the crucial role of policy stability in managing inflationary pressures. The error correction model further reveals the dynamic short-term effects, where both past inflation rates and changes in EPU influence current inflation levels. These findings underscore the importance of maintaining a predictable economic policy environment for mitigating inflation risks and fostering economic stability in Japan. The study contributes valuable insights for policymakers navigating the complexities of economic policy uncertainty and inflation management in Japan's unique economic challenges.

**Keywords:** Economic Policy Uncertainty; Inflation; Japan; ARDL Model; Cointegration.

## 1. Introduction

The interplay between economic policy uncertainty (EPU) and inflation has become a central theme in economic research and policy debates, prompting numerous investigations into this complex relationship. Studies like Baker et al. (2016) have underscored the difficulty of establishing causality while emphasizing the significant role of policy uncertainty in explaining economic performance, particularly during times of crisis. Similarly, Anderl & Caporale (2023) and Wei (2023) have explored the nuanced and asymmetric impacts of EPU on inflation and inflation expectations, respectively, using advanced econometric models. Further contributions by Duca & Saving (2018) and Das (2023) highlight the potential link between EPU and subpar economic growth and its influence on corporate financial decisions. This collective body of research emphasizes the need for policymakers to consider the implications of policy uncertainty for economic stability and inflation dynamics.

Japan's economic landscape, marked by a prolonged period of deflation and subsequent policy interventions like "Abenomics," offers a unique context for exploring the complex interplay between (EPU) and inflation. While the influence of EPU on various macroeconomic variables is acknowledged, a deeper understanding of its specific dynamics within Japan's distinct economic environment remains elusive, as highlighted by Adeosun et al. (2022). Although research has examined the impact of EPU on various aspects of the Japanese economy, including oil demand shocks, environmental factors, and even tourism, a dedicated investigation into the EPU-inflation relationship is lacking.

This study aims to bridge this gap by analyzing the nexus among EPU and Inflation in Japan from 2000 to 2024.

### *1.1 Study Problematic*

In light of the above research gap, we formulate the central question guiding this investigation:

**Does a long-term equilibrium relationship exist between EPU and Inflation in Japan?**

### *1.2 Study Aims*

Assuming the presence of a nexus among EPU and inflation in Japan, we seek to answer the following two questions:

- How do short-term fluctuations in EPU impact inflation dynamics?
- What is the speed of adjustment towards long-term equilibrium following EPU shocks?



To address these questions, we employ econometric techniques, specifically cointegration analysis and the Autoregressive Distributed Lag (ARDL) model with an error correction mechanism. This approach allows us to delve into both the long-term equilibrium and short-term dynamics between EPU and Inflation while accounting for potential endogeneity and non-stationarity of the variables.

Our research offers several potential contributions. First, it provides a comprehensive analysis of the EPU-inflation relationship in Japan, filling a gap in the existing literature. Second, it utilizes robust econometric methods to address the complexities of this relationship. Third, it offers valuable insights for policymakers navigating the challenges of EPU and inflation management.

The paper is structured as follows: Section 2 thoroughly reviews relevant literature, summarizing critical studies on the EPU-inflation nexus and highlighting the research gap we address. Section 3 outlines the methodology and data employed in our analysis. Section 4 presents the empirical results, including cointegration tests, ARDL long-run form estimates, and error correction model findings. Section 5 discusses the implications of our results, offering policymakers insights and contributing to the broader economic discourse surrounding EPU and Inflation. Finally, Section 6 concludes the paper and suggests potential avenues for future research.

## 2. Literature review

The interplay between EPU and inflation presents a multifaceted challenge, particularly within the unique economic landscape of Japan. This review delves into key research investigating this relationship, focusing on Japan's experience with unconventional monetary policies and the global transmission of economic uncertainty.

Several studies have explored how EPU reverberates across international borders, impacting various economies. Han et al. (2016) demonstrated the significant influence of US

and EU EPU on China's economic indicators, including a minor increase in inflation. Similarly, Fontaine et al. (2018) revealed the asymmetric impact of Chinese EPU on developed economies, with Japan showing less sensitivity than others.

Within Japan, researchers have delved deeper into the EPU-inflation nexus. Yoshino and Taghizadeh-Hesary (2015) investigated the effectiveness of quantitative easing policies, finding limited stimulation due to future uncertainties and demographic shifts. Athari et al. (2022) established EPU as a significant predictor of inflation across various timeframes, highlighting its role in driving inflationary pressures.

Further research by Adeosun et al. (2023) explored the dynamic interplay between EPU, geopolitical risks, and inflation, revealing these relationships' complex and heterogeneous nature across different frequencies. Wang et al. (2020) uncovered a significant link between treasury yield spread and EPU reduction, suggesting the vulnerability of Japanese financial agents to negative EPU shocks within a low-inflation environment.

the EPU-inflation relationship in Japan is multifaceted and evolving. While studies acknowledge the global transmission of EPU and its potential impact on inflation, Japan's specific dynamics are shaped by its unique economic context and unconventional monetary policies. Continued research is essential to comprehend these intricacies and fully inform effective policy interventions.

## 3. Data and Methodology

This paper investigates the nexus among EPU and Inflation in Japan from January 2000 to January 2024. Equation (1) outlines the model employed in our empirical analysis using the unrestricted error correction model (UECM):



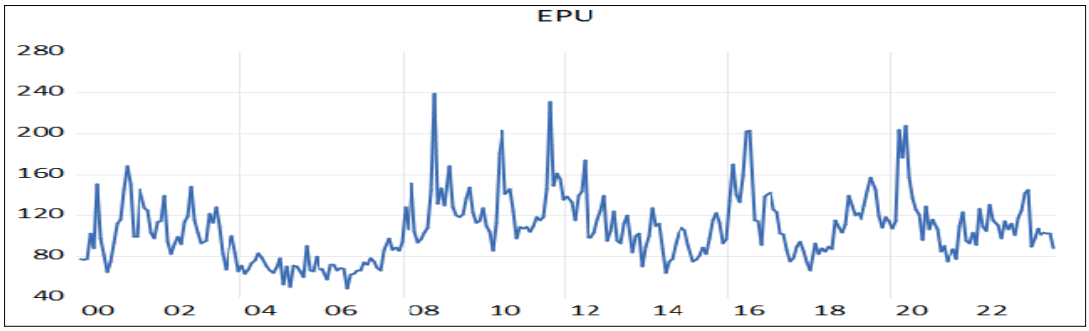
$$\Delta CPI_t = \alpha_{0CPI} + \sum_{i=1}^{P} \beta_{1i} \Delta CPI_{t-i} + \sum_{i=0}^{q} \beta_{2i} \Delta EPU_{t-i} + \theta_1 CPI_{t-1} + \theta_2 EPU_{t-1} + \varepsilon_t \quad (1)$$

In this equation, $\alpha_0$ represents the intercept, and $\varepsilon_t$ denotes the white noise term. $\beta_{ki}$ represents short-term coefficients and $\theta_1, \theta_2$ represents long-term dynamic coefficients of the model. The variables used in this study are described in detail in Table (01).

### *3.1 Data of the study*

Figure (01) visually represents Japan's EPU index from January 2000 to January 2024, capturing the fluctuating nature of economic policy dynamics. The time series graph reveals marked volatility, characterized by several significant spikes, which likely denote periods of heightened uncertainty due to economic events or policy announcements. The data suggests a cyclical pattern of EPU, with phases of relative calm followed by turbulent movements, reflecting the reactive nature of policy to both domestic and international economic developments. The apparent non-stationary behavior of the series, with shifts in the level and variance over time, underscores the complex and evolving landscape of economic policy that can influence macroeconomic variables, including inflation. This pattern indicates policymakers' challenges in managing expectations and stabilizing the economic environment in such uncertainty. The depicted EPU trajectory is integral to the study as it provides empirical grounding for investigating the potential impact of economic policy volatility on Japan's inflationary trends.

Fig. 1. Economic Policy Uncertainty data from 2000.1 to 2024.1

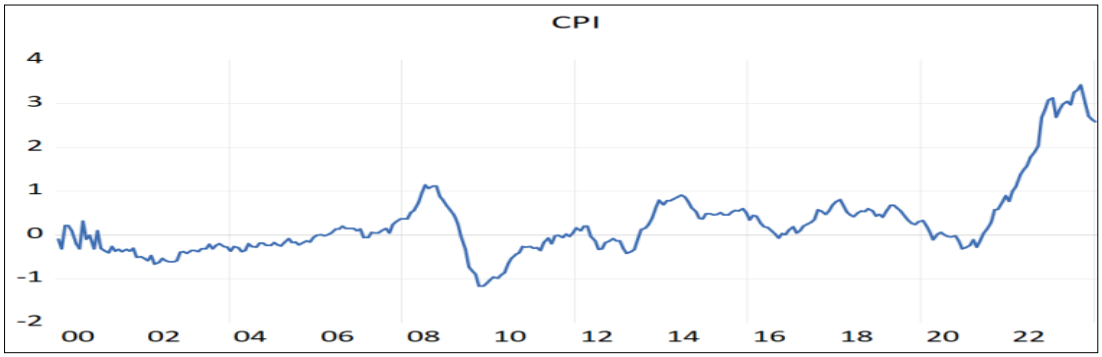



Source: from database using Eviews 12.0

Figure (02) delineates the Consumer Price Index (CPI) as a measure of Inflation in Japan from January 2000 to January 2024, providing a quantitative depiction of inflationary trends over two decades. The graph shows the CPI oscillating with periods of stability and instances of deflation, indicated by values dipping below zero, and inflation, where the index rises above zero. A noteworthy feature of this series is the substantial upsurge towards the end of the observed period, indicating a period of accelerated inflation. This increase demands particular attention as it may suggest a shift in the underlying inflation dynamics, potentially attributable to internal and external economic shocks or policy adjustments. The data presents a rich narrative of Japan's inflationary environment, with the CPI movements encapsulating the economic pressures that policymakers must navigate. Understanding the nuances within this inflationary trajectory is vital for econometric analysis, as it bears implications for evaluating monetary policy effectiveness and the nation's broader economic health. The visible patterns in CPI evolution throughout the period studied are central to exploring the nexus among inflation rates and EPU in the Japanese context.



Fig. 2. Inflation data from 2000.1 to 2024.1




Source: from database using Eviews 12.0

*3.2. Variables and Descriptions*

Table (01) enumerates the variables employed in this study, each pivotal to examining Japan's economic milieu. The EPU Index, sourced from the EPU database, serves as a barometer for the opacity and unpredictability of Japan's economic policy environment. This index amalgamates various indicators to yield a composite measure reflective of the uncertainty generated by policy actions or inactions within the economy. Concurrently, the Consumer Price Index (CPI) represents the variable for inflation, calculated as a percentage change in the monthly CPI, a conventional indicator of price level movements within an economy. Sources for this data include inflation. The EPU portal and the Bank of Japan provide comprehensive and authoritative figures pertinent to the country's inflationary trends. Together, these variables construct the analytical framework of this study,

underpinning the rigorous exploration of the nexus among policy uncertainty and the shifting landscape of consumer prices in Japan. Their careful selection and the credible origin of their data ensure a robust empirical foundation for the ensuing econometric analysis.

Table .1. Variables and Descriptions

| Variables | Description | Source From Data |
|---|---|---|
| EPU | EPU Index | Economic Policy Uncertainty |
| CPI | Inflation based on Consumer Price Index (%, Monthly CPI) | Inflation.eu & Bank of Japan |

Source: EPU, Inflation.eu & Bank of Japan

Recognizing the potential for non-stationarity in macroeconomic data, we begin by investigating the stationarity properties of EPU and CPI using established unit root tests, namely the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests. Following confirmation of stationarity, we examine the presence of a long-term equilibrium nexus among these variables through cointegration analysis, employing the bounds testing approach.

To delve deeper into the dynamic interplay between EPU and inflation, we utilize the Autoregressive Distributed Lag (ARDL) model, which incorporates an error correction mechanism. This approach allows us to explore both the long-run equilibrium and short-run dynamics while accounting for potential endogeneity and the established cointegration relationship. Additionally, the ARDL model provides insights into how the system adjusts toward long-term equilibrium following EPU shocks.



A series of diagnostic tests are conducted to ensure the robustness and validity of our model. We assess the model's explanatory power through R-squared and adjusted R-squared values, while the Breusch-Godfrey LM test is employed to detect any serial correlation in the residuals. Heteroscedasticity is examined using the Breusch-Pagan-Godfrey test. Further, CUSUM and CUSUM of Squares tests evaluate the stability of the model's coefficients over time.

## 4. Econometric study findings

This research explores the interplay between EPU and inflation trends in Japan from 2000 to 2024. The initial phase of analysis involves visual exploration of the time series data and rigorous examination of stationarity characteristics using both Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests.

### *4.1. Descriptive Statistics*

In our analysis of the nexus among EPU and Inflation in Japan from January 2000 to January 2024, the descriptive statistics reveal notable insights into the behavior of both variables. The Consumer Price Index (CPI) and EPU have identical observations at 289, ensuring a consistent comparative basis over the study period. The average CPI is approximately 0.256, indicating modest inflation levels, whereas the average EPU stands at approximately 107.034, suggesting a heightened sense of uncertainty in economic policies during the period studied. The median values for CPI and EPU are significantly lower than their respective means, indicating a right-skewed distribution for both indices, which points to periods of extreme values that influence the average. The high standard deviations further evidence this skewness: 0.826 for CPI and 31.276 for EPU, highlighting considerable fluctuations in monthly inflation rates and economic policy stability, respectively. The range of values, with CPI extending from -1.171 to 3.422 and EPU from 48.398 to 239.021, underscores the periods of deflation, significant inflationary spikes, and varying levels of EPU. These findings suggest a complex interplay between EPU and inflation, characterized by volatility and extreme conditions that could disproportionately impact economic stability and policy-making in Japan. This analysis underscores the importance of considering these

variables' variability and distribution characteristics when examining their interrelationship and the broader economic implications.

Table 2. Descriptive Statistics

| Variable | Obs | Mean | Median | Std. Dev. | Min | Max |
|---|---|---|---|---|---|---|
| CPI | 289 | 0.255856 | 0.073018 | 0.826426 | -1.170900 | 3.421566 |
| EPU | 289 | 107.0335 | 103.4294 | 31.27571 | 48.39814 | 239.0214 |

Source: from database using Eviews 12.0

*4.2. ADF and PP Unit Root Test Results*

To ensure the robustness of our time series analysis, we thoroughly examined the stationarity properties of the Consumer Price Index (CPI) and EPU for Japan, covering the period from January 2000 to January 2024. Employing both Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests, we observed distinct characteristics in these variables' level and first-differenced forms.

Initially, the tests revealed non-stationarity in CPI and EPU at their level forms, particularly when considering models with only a constant term. However, including a trend component led to the rejection of the unit root hypothesis for EPU, while CPI remained non-stationary.

The picture changed dramatically upon examining the first differences of CPI and EPU. Both variables exhibited strong evidence of stationarity across all ADF and PP test specifications, with highly significant t-statistics confirming the rejection of the unit root hypothesis. This finding underscores the importance of differencing these series to ensure the validity of subsequent time series analysis. By establishing stationarity in the first-differenced forms, we lay a solid foundation for accurately modeling the dynamic nexus among EPU and inflationary pressures in the Japanese context.



Table 3. ADF and PP Unit Root Test Results

| UNIT ROOT TEST RESULTS (ADF) | | | | UNIT ROOT TEST RESULTS (PP) | | |
|---|---|---|---|---|---|---|
| **At Level** | | | | **At Level** | | |
| | | CPI | EPU | | CPI | EPU |
| With Constant | t-Stat | -0.9499 | -6.9134*** | t-Stat | -1.0704 | -6.7145*** |
| With Constant & Trend | t-Stat | -2.1932 | -7.0474*** | t-Stat | -2.1338 | -6.8827*** |
| Without Constant & Trend | t-Stat | -0.7258 | -0.9866 | t-Stat | -0.7998 | -1.2451 |
| **At First Difference** | | | | **At First Difference** | | |
| | | d(CPI) | d(EPU) | | d(CPI) | d(EPU) |
| With Constant | t-Stat | -15.5240*** | -14.3016*** | t-Stat | -16.4795*** | -59.2108*** |
| With Constant & Trend | t-Stat | -15.5789*** | -14.2790*** | t-Stat | -16.3713*** | -61.1113*** |
| Without Constant & Trend | t-Stat | -15.4747*** | -14.3274*** | t-Stat | -16.4852*** | -58.9809*** |

Source: from database using Eviews 12.0

The cointegration analysis, summarized in Table (04) of the study, provides compelling evidence of a long-term equilibrium nexus among EPU and Inflation (CPI) in Japan from January 2000 to January 2024.

We find a statistically significant cointegration by utilizing the F-Bounds test to assess the null hypothesis of no level nexus among the variables. The calculated F-statistic of 7.929659 surpasses critical values at various significance levels for asymptotic and finite sample sizes. This robust rejection of the null hypothesis confirms the presence of a long-term equilibrium nexus among EPU and CPI.

This finding suggests that fluctuations in EPU are not merely correlated with inflation rates but potentially have a causal impact on them in the long run. For policymakers, this cointegration underscores the crucial role of stable economic policies in managing and mitigating inflationary pressures within the Japanese economy.

Table 4. Cointegration Test Results

| F-Bounds Test | | Null Hypothesis: No levels of relationship | | |
|---|---|---|---|---|
| Test Statistic | Value | Signif. | I(0) | I(1) |
| | | Asymptotic: n=1000 | | |
| F-statistic | 7.929659 | 10% | 3.02 | 3.51 |
| k | 1 | 5% | 3.62 | 4.16 |
| | | 2.5% | 4.18 | 4.79 |
| | | 1% | 4.94 | 5.58 |
| Actual Sample Size | 285 | Finite Sample: n=80 | | |
| | | 10% | 3.113 | 3.61 |
| | | 5% | 3.74 | 4.303 |
| | | 1% | 5.157 | 5.917 |

Source: from database using Eviews 12.0

*4.3. ARDL Long Run Form Results*

The Autoregressive Distributed Lag (ARDL) model, as detailed in Table (05), provides valuable insights into the long-term interplay between EPU and Inflation (CPI) in Japan, covering the period from January 2000 to January 2024. This model allows us to assess the influence of EPU on CPI when both variables have reached their long-term equilibrium levels.

Our analysis reveals a statistically significant and positive long-run nexus among EPU and CPI. The EPU coefficient, estimated at 26.62322 with a highly significant t-statistic, indicates that a rise in EPU leads to a substantial increase in the inflation rate.

Moreover, the model incorporates a significant intercept term, suggesting the presence of additional factors or underlying inflationary pressures beyond the scope of EPU. The error correction term, derived from the long-run equation:

$$EC = CPI - (26.6232\ EPU + 106.9498)$$

The speed at which CPI adjusts towards equilibrium following changes in EPU is quantified, highlighting the dynamic nature of this relationship.

In conclusion, the ARDL model underscores the crucial role of EPU in shaping inflation dynamics within Japan. The significant positive impact of EPU on CPI reinforces the importance of maintaining stable economic policies to manage inflationary expectations and achieve long-term price stability effectively.

Table 5. ARDL Long Run Form Results

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| EPU | 26.62322 | 7.856931 | 3.388502 | 0.0008 |
| C | 106.9498 | 6.352358 | 16.83623 | 0.0000 |

EC = CPI - (26.6232*EPU + 106.9498)

Source: from database using Eviews 12.0

*4.4. ARDL Error Correction Regression Results*

The ARDL Error Correction Model (ECM) results presented in Table (06) focus on the short-term dynamics and adjustment mechanisms linking EPU to Inflation in Japan, represented by the Consumer Price Index (CPI). This table elucidates how past values of CPI and EPU influence current inflation rates and how deviations from the long-term equilibrium are corrected over time.

1**. Lagged Differences of CPI**:

- D(CPI(-1)): The first lag of the differenced CPI has a coefficient of 0.136627 with a standard error of 0.062826. The t-statistic is 2.174707, significant at the 5% level (Prob = 0.0305). This suggests that the last period's CPI positively affects the current period's CPI, indicating some persistence in inflation rates.
- D(CPI(-2)): The second lag shows a negative coefficient (-0.070181) but is not statistically significant (Prob = 0.2513), indicating that the inflation effect from two periods ago does not significantly influence the current inflation.
- D(CPI(-3)): The third lag of CPI is significantly negative (-0.175949) with a t-statistic of -3.025670 (Prob. = 0.0027), suggesting that changes in CPI three periods ago have a meaningful negative effect on current inflation.



2. **Lagged Differences of EPU:**

- D(EPU): The current period's change in EPU substantially positively impacts CPI with a coefficient of 34.95678, significant at less than 0.1% level (Prob. = 0.0003). This indicates a strong immediate effect of policy uncertainty on inflation.
- D(EPU(-1)): The first lag of the change in EPU shows a negative coefficient (-16.12552), which is marginally significant (Prob. = 0.0955), suggesting some reversal or adjustment effect following the initial impact of EPU changes.
- D(EPU(-2)) and D(EPU(-3)): These coefficients are -11.82040 and 30.11938, respectively, with D(EPU(-3)) being significantly positive (Prob. = 0.0015). This pattern suggests a complex dynamic in how past values of policy uncertainty impact inflation, with significant effects manifesting notably three periods back.

3**. Co- integrating Equation (Coint Eq(-1)):**

- The coefficient of the error correction term (CointEq(-1)) is -0.208724 with a very low standard error, indicating strong significance (Prob. = 0.0000, t-statistic = -4.233007). This term measures the speed at which the previous period's disequilibrium (the deviation from the long-term nexus among CPI and EPU) corrects itself in the current period. The negative sign and significant coefficient suggest that any deviation from the long-term equilibrium is corrected relatively quickly, with about 20.87% of disequilibrium corrected each period.

The results from the ECM indicate that both past values of CPI and changes in EPU play significant roles in determining the current inflation rate in Japan, with EPU exerting a

notable impact both immediately and over several periods. A significant and negative error correction term underscores a stable long-term equilibrium nexus among EPU and CPI, with deviations from this equilibrium adjusted significantly within a year. This model highlights the importance of past inflation and EPU in shaping the inflationary trajectory, providing valuable insights for policymakers regarding the economic dynamics and the impact of uncertainty on inflation.

Table 6. ARDL Error Correction Regression Results

| ECM Regression<br>Case 2: Restricted Constant and No Trend | | | | |
|---|---|---|---|---|
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| D(CPI (-1)) | 0.136627 | 0.062826 | 2.174707 | 0.0305 |
| D(CPI (-2)) | -0.070181 | 0.061045 | -1.149657 | 0.2513 |
| D(CPI (-3)) | -0.175949 | 0.058152 | -3.025670 | 0.0027 |
| D(EPU) | 34.95678 | 9.693145 | 3.606340 | 0.0003 |
| D(EPU (-1)) | -16.12552 | 9.640097 | -1.672755 | 0.0955 |
| D(EPU (-2)) | -11.82040 | 9.372675 | -1.261155 | 0.2083 |
| D(EPU (-3)) | 30.11938 | 9.401012 | 3.203845 | 0.0015 |
| CointEq(-1)* | -0.208724 | 0.049309 | -4.233007 | 0.0000 |

Source: from database using Eviews 12.0



*4.5. Diagnostic Tests Statistics*

The diagnostic tests, summarized in Table (07), offer valuable insights into the statistical robustness of our econometric model examining the nexus among EPU and Inflation (CPI) in Japan. While the results present a mixed picture, they support the model's validity.

The model demonstrates moderate explanatory power, with R-squared and adjusted R-squared values indicating that the included variables explain approximately 55% of the variability in CPI. The Breusch-Godfrey test for serial correlation provides reassurance, as it fails to detect any significant correlation among the residuals, thus supporting the assumption of independent errors.

However, the Breusch-Pagan-Godfrey test suggests the potential presence of mild heteroscedasticity, implying that the variance of residuals may not be constant across all levels of the independent variable. While this finding is only marginally significant, future analyses could consider addressing heteroscedasticity through techniques such as robust standard errors or variable transformations to enhance the efficiency of the estimates.

Overall, while the diagnostic tests suggest areas for potential refinement, they generally support the model's soundness and the results' reliability.

Table 7. Diagnostic Tests Statistics

| | |
|---|---|
| R-Squared | 0.5503 |
| Adjusted R-Squared | 0.5356 |
| Breusch-Godfrey Serial Correlation LM Test | 1.3357 (0.1981) |
| Heteroscedasticity Test: Breusch-Pagan-Godfrey | 1.6840 (0.0926) |

Source: from database using Eviews 12.0

*4.6. CUSUM and CUSUM of Squares Test*

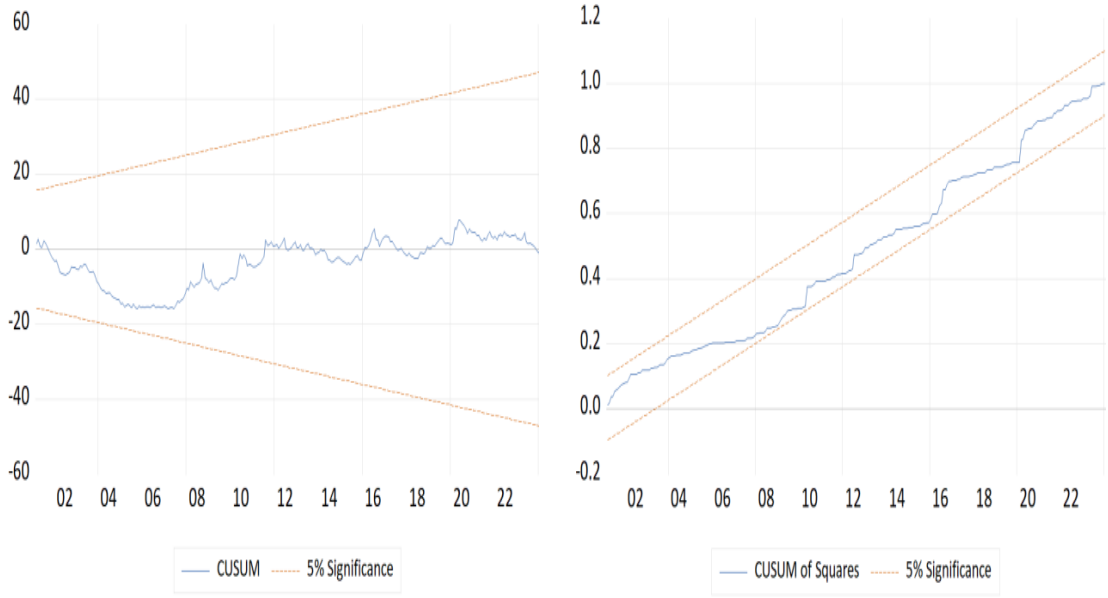
Figure (03) presents the results of the CUSUM and CUSUM of Squares tests, which are crucial for evaluating the stability of the regression coefficients throughout the study period. Both tests provide reassurance regarding the model's robustness and the reliability of the estimated relationships.

The CUSUM plot remains consistently within the 5% significance boundaries, indicating the absence of any structural breaks or shifts in the model's coefficients over time. Similarly, the CUSUM of Squares test confirms the stability of the residual variance, with the plot consistently falling within the critical bounds.

These results collectively reinforce the validity of our econometric estimations and provide confidence in the model's ability to capture the dynamic nexus among EPU and Inflation in Japan without the influence of unstable or shifting parameters throughout the observed period.



Fig. 3. CUSUM and CUSUM of Squares Test




Source: from database using Eviews 12.0

## 5. Discussion

Our econometric analysis reveals a significant positive nexus among EPU and Inflation in Japan over the period 2000-2024. The cointegration test confirmed a long-run equilibrium between the two variables, implying that EPU changes lead to corresponding inflation shifts over time. The ARDL model further quantified this relationship, demonstrating that an increase in EPU is associated with a substantial rise in the inflation rate. This finding aligns with the notion that uncertainty regarding economic policies can disrupt markets, distort investment decisions, and ultimately impact price levels.

The error correction model (ECM) results provided more profound insights into the short-term dynamics. We observed a complex interplay between past inflation rates and changes in EPU, significantly influencing current inflation levels. Notably, changes in EPU exhibit immediate and lagged effects on inflation, suggesting a multifaceted impact on price dynamics. The significant and negative error correction term indicates that deviations from the long-term equilibrium between EPU and Inflation are corrected relatively quickly, implying a stable underlying relationship.

Our findings resonate with existing literature on the EPU-inflation nexus, particularly within the context of Japan. Studies by Athari et al. (2022) and Adeosun et al. (2023) similarly identified EPU as a crucial predictor of Inflation in Japan. However, our research goes further by establishing a long-run equilibrium and quantifying the magnitude and dynamics of the relationship using the ARDL model and ECM.

While international studies like Han et al. (2016) and Fontaine et al. (2018) have explored the global transmission of EPU and its impact on various economies, our research focuses specifically on Japan, taking into account its unique economic landscape characterized by deflationary periods and unconventional monetary policies like "Abenomics" This focused approach allows for a deeper understanding of the nuances of the EPU-inflation relationship within the Japanese context.



The significant positive nexus among EPU and Inflation in Japan has important policy implications. Policymakers should prioritize maintaining a stable and predictable economic policy environment to mitigate inflationary pressures. Clear communication, transparent decision-making, and consistent policy implementation reduce uncertainty and foster economic stability. This is especially important in Japan's economic challenges, where mitigating inflation risks is essential for sustainable growth.

From a theoretical perspective, our findings contribute to understanding the transmission mechanisms through which EPU impacts inflation. The results suggest that uncertainty regarding economic policies can influence inflation through various channels, including investment decisions, market expectations, and supply chain disruptions. Further research can explore these mechanisms in greater detail and shed light on the specific pathways through which EPU affects price dynamics.

While our study provides valuable insights into the EPU-inflation relationship in Japan, several limitations should be acknowledged. First, the analysis focuses on a specific period (2000-2024) and may not fully capture the long-term historical dynamics of this relationship. Second, the model focuses on EPU and CPI but does not consider other potential factors that might influence inflation, such as global commodity prices, exchange rates, and demographic trends. Future research could incorporate these variables to develop a more comprehensive understanding of inflation dynamics in Japan.

Furthermore, exploring the asymmetric effects of EPU on Inflation, as highlighted by Anderl & Caporale (2023), could offer additional insights. Additionally, investigating the role of specific policy areas, such as fiscal or monetary policy uncertainty, in driving inflation could be a valuable avenue for future research.

## 6. Conclusion

This study investigated the nexus among EPU and Inflation in Japan from 2000 to 2024, revealing a significant positive association between the two variables. Cointegration analysis confirmed a long-run equilibrium, indicating that EPU changes lead to corresponding inflation shifts over time. The ARDL model further quantified this relationship, demonstrating that increased EPU is associated with a substantial rise in the inflation rate. Additionally, the error correction model highlighted the complex short-term dynamics, where past inflation rates and changes in EPU interactively influence current inflation levels.

These findings hold significant implications for policymakers in Japan. Maintaining a stable and predictable economic policy environment mitigates inflationary pressures and fosters economic stability. Clear communication, transparent decision-making, and consistent policy implementation can reduce uncertainty and promote sustainable growth. This is particularly important given Japan's unique economic landscape, characterized by periods of deflation and unconventional monetary policies.

However, our research has limitations. The analysis focuses on a specific timeframe and does not incorporate other potential factors influencing inflation, such as global commodity prices and exchange rates. Future research could expand the timeframe to encompass a longer historical perspective and include additional variables to develop a more comprehensive understanding of inflation dynamics in Japan. Additionally, exploring the asymmetric effects of EPU on inflation and investigating the role of specific policy areas could provide further insights.

By shedding light on the significant nexus among EPU and Inflation, this study contributes valuable knowledge to the ongoing discourse surrounding economic policy and inflation management in Japan. The findings emphasize the need for policymakers to prioritize stability and predictability in their economic policies to mitigate inflation risks and foster a more resilient and sustainable economic future.



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