Economic Policy Uncertainty and Growth Dynamics in the Western Balkans[1]

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Abstract

This paper examines how European Economic Policy Uncertainty (EAPU) is related to macroeconomic performance in five Western Balkan economies—Albania, Bosnia and Herzegovina, Montenegro, North Macedonia, and Serbia—during 2019–2024. Using monthly indicators, we combine country fixed-effects panel regressions with a panel Vector Autoregression (VAR) to estimate average relationships and trace dynamic responses to changes in European policy uncertainty. Because comparable country-specific EPU indices are not available for the region, we use the European EPU index as a common measure of external uncertainty, reflecting the Western Balkans' close economic links with Europe. The results show a clear pattern: higher European policy uncertainty is associated with weaker economic activity and investment and moderately higher unemployment. The relationship with inflation is weaker and not statistically robust. VAR responses support this pattern, especially for real activity and investment. These findings indicate conditional associations and model-based responses rather than definitive causal effects. For small open economies exposed to external shocks, the results underline the value of predictable policies, credible institutions, and stronger macroeconomic resilience.

Keywords: ***Economic Policy Uncertainty; Western Balkans; Economic Activity; Investment; Panel Regression; Panel VAR; External Uncertainty; Spillover Effects***

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1. Introduction

Economic Policy Uncertainty (EPU) refers to uncertainty about government policies, regulation, fiscal and monetary decisions, and the wider political-economic environment. It matters because uncertainty changes behavior. Firms may delay investment and hiring, households may postpone spending, and financial markets may demand higher risk premia. Even a temporary rise in uncertainty can therefore weaken economic activity.

The Western Balkans offer a particularly relevant setting for studying these effects. Albania, Bosnia and Herzegovina, Montenegro, North Macedonia, and Serbia are small, relatively open economies with strong trade, investment, financial, and institutional links to Europe. Between 2019 and 2024, the region faced several overlapping shocks: the COVID-19 pandemic, supply-chain disruptions, the war in Ukraine, energy-price shocks, high inflation, and continuing uncertainty around domestic reforms and European integration.

For economies that depend heavily on foreign demand, capital inflows, remittances, and investment, external uncertainty can quickly become a domestic economic concern. European policy uncertainty may reach the Western Balkans through trade, financial conditions, investor expectations, and delayed capital spending. Domestic political and institutional developments may add further uncertainty that a Europe-wide indicator cannot capture.

This study therefore asks a simple question: How strongly is European economic policy uncertainty associated with short-run macroeconomic dynamics in the Western Balkans, and how do these economies respond over time to changes in external policy uncertainty?

The paper makes three contributions. First, it provides evidence for a relatively underexplored group of small, open transition economies closely integrated with Europe. Second, it uses monthly indicators to capture short-run dynamics around major uncertainty episodes. When key macroeconomic variables are not available monthly, we use high-frequency proxies and state their limitations explicitly. Third, we combine two complementary methods: country fixed-effects panel regressions to estimate average conditional relationships and a panel VAR to trace dynamic responses to EAPU innovations.

Throughout the paper, EAPU is treated as a measure of external European policy uncertainty, not as a direct measure of domestic uncertainty in each Western Balkan economy. This distinction is essential for both the empirical strategy and the interpretation of the results. The next section reviews the literature, followed by the data and methodology, empirical results, discussion, limitations, and policy implications.

2. Literature Review

2.1 Theoretical Channels of Economic Policy Uncertainty

Uncertainty has long been recognized as an important influence on economic decisions. Keynes (1936) and Knight (1921) emphasized its role in decision-making, while later research formalized the value of waiting when investment is partly irreversible. In the real-options framework of Dixit and Pindyck (1994), greater uncertainty raises the value of postponing investment until more information becomes available.

Modern empirical work on EPU was advanced by Baker, Bloom, and Davis (2016), who developed a newspaper-based policy uncertainty index. The literature identifies several channels through which uncertainty can affect the economy: firms may delay investment and hiring, households may save more as a precaution, and financial markets may increase risk premia. Together, these responses can reduce output and employment.

2.2 Evidence from Advanced and Emerging Economies

Bloom (2009) shows that uncertainty shocks can cause sharp short-run contractions, followed by recovery as postponed decisions resume. Christiano, Motto, and Rostagno (2014) and Carrière-Swallow and Céspedes (2013) similarly find that uncertainty and risk shocks can reduce output and investment, with stronger effects where financial constraints are tighter. At the firm level, Li and Huang (2021) report lower investment when policy uncertainty rises in China.

Evidence from small open economies points in the same direction. Luk et al. (2017) find significant macroeconomic responses to EPU in Hong Kong through financial, employment, and investment channels. Cerda, Silva, and Tapia (2020) document similar links between policy uncertainty and macroeconomic fluctuations in Chile. These studies suggest that externally exposed economies may be particularly sensitive to uncertainty.

2.3 International Spillovers and Small Open Economies

Policy uncertainty also crosses borders. Biljanovska, Grigoli, and Hengge (2018) show that uncertainty originating in major economies can reduce output and investment elsewhere. Such spillovers are especially relevant when countries are closely linked to the source economy through trade and finance. This mechanism is directly relevant to the Western Balkans because of their strong economic ties with the European Union.

Research on European integration also highlights the role of institutional and external linkages in economic performance (Campos, Coricelli, & Moretti, 2019). In the Western Balkans, foreign direct investment, institutional credibility, and progress toward European integration are central to convergence. Regional evidence and policy discussions likewise suggest that uncertainty and policy reversals can weaken investment and growth.

2.4 Research Gap: The Western Balkans

Despite a large international literature on economic policy uncertainty, evidence focused specifically on the Western Balkans remains limited. This gap matters. The region combines small domestic markets, strong trade and financial integration with the EU, dependence on foreign investment, and an ongoing process of institutional and economic convergence.

Existing research shows that uncertainty can affect investment, output, and employment and that shocks originating in major economies can spill across borders. Yet these effects cannot simply be assumed to have the same size or dynamics in the Western Balkans. The region's economic structure, institutional setting, and external dependence call for separate empirical analysis.

This study addresses that gap by examining how a common European policy uncertainty factor is related to short-run macroeconomic dynamics across five Western Balkan economies. The European EPU index is not used as a substitute for domestic uncertainty. Instead, it represents an external uncertainty factor that may reach the region through trade, finance, investment, and expectations.

3. Methodology

3.1 Data and Sample

The analysis covers Albania, Bosnia and Herzegovina, Montenegro, North Macedonia, and Serbia using monthly observations from 2019 to 2024, subject to data availability. Macroeconomic data come primarily from Eurostat and, where required by the original data construction, national statistical and trade sources. The sample spans pre-pandemic conditions, the COVID-19 shock and recovery, the start of the war in Ukraine, and the subsequent inflationary period.

3.2 Variable Definition and Construction

The empirical analysis focuses on the following macroeconomic indicators:

Monthly economic activity proxy: year-on-year growth in the Industrial Production Index (IPI) is used as a high-frequency proxy for aggregate real activity because official GDP is reported quarterly. This measure should not be interpreted as monthly GDP itself.

Unemployment rate: the harmonized unemployment rate captures labor-market conditions. Where the original series were available only quarterly, they were interpolated to monthly frequency.

Investment proxy: construction activity and capital-goods imports are combined, after normalization and seasonal adjustment where applicable, to approximate short-run investment dynamics. This is a proxy, not a direct monthly measure of gross fixed capital formation.

Industrial production: year-on-year IPI growth is also examined as a sector-specific outcome. Because IPI growth is also the basis of the monthly economic-activity proxy, the two results are closely related and should not be treated as independent evidence.

Inflation: year-on-year change in the Consumer Price Index (CPI) is used to capture price dynamics.

Variables used in levels were log-transformed and differenced when required for stationarity. Growth rates and percentage rates were retained in forms that preserve their economic interpretation.

3.3 Measurement of Economic Policy Uncertainty

The European Economic Policy Uncertainty (EAPU) Index is the main uncertainty measure in the analysis. It comes from the Baker, Bloom, and Davis policy uncertainty database and is based on newspaper coverage in major European economies.

This choice reflects both data availability and economic relevance. Comparable monthly country-specific EPU indices do not exist for all five Western Balkan economies, while the region is strongly exposed to European trade, investment, financial, and expectations channels. A common European index therefore provides a consistent measure of external uncertainty across the sample.

EAPU should nevertheless be read as a measure of external European policy uncertainty, not domestic policy uncertainty within each country. It does not capture country-specific elections, institutional instability, regulatory changes, or domestic policy shocks. The estimated coefficients therefore reflect responses to a common European uncertainty factor, not the combined effect of all domestic and external uncertainty.

3.4 Econometric Strategy

3.4.1 Panel Regression Model

The baseline analysis uses a country fixed-effects panel model to estimate the average conditional relationship between European policy uncertainty and macroeconomic outcomes across the five economies. Country fixed effects control for structural differences that do not change over time.

The baseline specification is: $Y_{it} = \alpha_i + \beta EAPU_t + \rho Y_{i,t-1} + \gamma' X_{it} + \varepsilon_{it}$

where Yi,t is the outcome variable—for example, the monthly economic-activity proxy or unemployment rate—for country i in month t. α_i captures time-invariant country differences. $EAPU_t$ is the common European policy uncertainty index, and β is the coefficient of interest. $Y_{i,t-1}$ captures persistence, X_{it} contains other controls, including where applicable oil prices or EU industrial production, and ε_{it} is the error term.

Because EAPU changes over time but is common to all countries, unrestricted monthly time fixed effects are not included: they would absorb the variation in EAPU itself. Instead, observable common external factors are added directly as controls. The model is estimated using FGLS with standard errors clustered by month to address heteroskedasticity, serial dependence, and common shocks. The EAPU coefficient is interpreted as a conditional association, not as an unconditional causal effect.

3.4.2 Panel VAR and Identification Strategy

To examine how uncertainty effects evolve over time, we complement the panel estimates with a parsimonious panel Vector Autoregression. Given the short sample and number of variables, separate bivariate models pair EAPU with one domestic macroeconomic indicator at a time. This keeps the model manageable while allowing dynamic responses to be traced.

The general representation is:

$$Z_{it} = A_0 + A_1 Z_{i,t-1} + \ldots + A_p Z_{i,t-p} + u_{it}, \quad \text{where} \quad Z_{it} = [EAPU_t, Y_{it}]'.$$

Standard information criteria guide lag selection, with the Akaike Information Criterion favoring two monthly lags in the baseline specification. Country-specific effects are removed in the panel VAR transformation.

Structural innovations are identified through a recursive Cholesky decomposition, with EAPU ordered before the domestic macroeconomic variable. This assumes that European policy uncertainty can affect Western Balkan economic conditions within the same month, while developments in any single Western Balkan economy do not contemporaneously affect the Europe-wide EAPU index. Given the small size of these economies, the assumption is economically plausible, but it remains an identifying assumption rather than proof of exogeneity. Impulse responses are therefore interpreted as model-based dynamic responses conditional on this ordering.

3.5 Diagnostic Tests and Robustness Checks

The analysis includes unit-root tests, lag-order selection, VAR stability diagnostics, Granger-causality tests, an alternative specification using the U.S. EPU index, alternative proxies for economic activity, and a 2SLS exercise. Appendix A

summarizes these checks. Their purpose is to test the sensitivity of the baseline results, not to establish definitive causal identification.

The 2SLS exercise is treated as supplementary because using a global uncertainty innovation as an instrument for European EPU requires a strong exclusion restriction. Similarly, Granger-causality tests indicate predictive ordering, not structural causality.

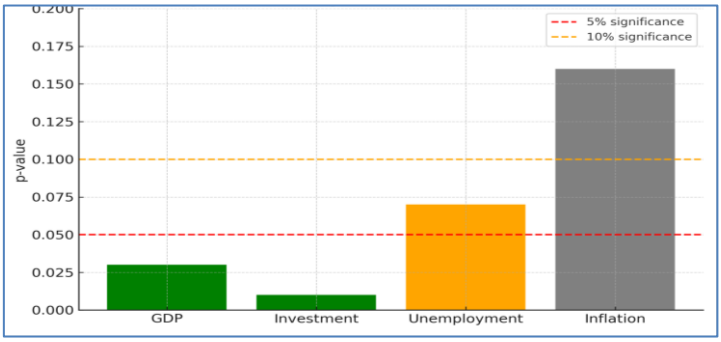


Figure 1. Granger causality test—p-values for selected macroeconomic variables.

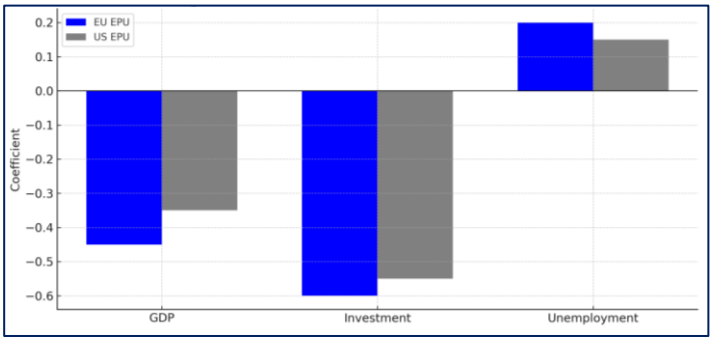


Figure 2. Robustness check—EU vs. US EPU index effects on macroeconomic variables.

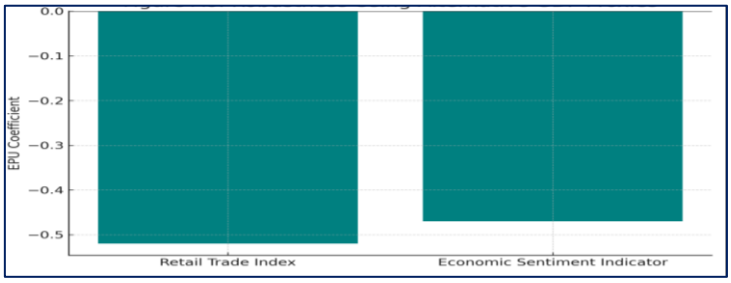


Figure 3. Robustness using alternative economic-activity proxies.

4. Results

4.1 Descriptive Evidence

The summary statistics show substantial macroeconomic volatility over 2019–2024. The economic-activity proxy fell sharply during the 2020 lockdowns and rebounded strongly afterward. Unemployment remained structurally high in parts of the region, investment was volatile, and inflation rose sharply in 2022 before easing. EAPU also recorded pronounced spikes around major European and global uncertainty episodes.

Simple correlations show the same broad pattern: EAPU is negatively correlated with economic activity and investment, positively correlated with unemployment, and only weakly related to inflation. These correlations are descriptive and do not establish causality.

4.2 Panel Regression Estimates

The panel estimates show a clear negative relationship between European policy uncertainty and monthly economic activity. A one-standard-deviation increase in EAPU is associated with about a 0.8 percentage-point reduction in year-on-year activity growth ($p < 0.01$). Because EAPU is common across countries, this estimate represents an average conditional association across the panel.

Investment shows the strongest response. A one-standard-deviation increase in EAPU is associated with about a 1.5 percentage-point decline in investment-proxy growth ($p < 0.01$). This result fits the wait-and-see mechanism: when uncertainty rises, firms have stronger incentives to postpone costly or partly irreversible investment decisions.

Unemployment moves in the opposite direction. Higher EAPU is associated with an increase of about 0.2 percentage points, statistically significant at the 5% level. The smaller and more gradual response is consistent with the slower adjustment of hiring and employment decisions.

Industrial production also declines as uncertainty rises: the standardized coefficient is about −0.8 and is significant at the 1% level. Because industrial production is also the basis of the monthly economic-activity proxy, this result should be treated as closely related evidence rather than independent confirmation.

Inflation is different. Its estimated coefficient is small and statistically insignificant in the baseline model. The data therefore provide no robust evidence that European policy uncertainty systematically affects inflation during the sample period.

Appendix A reports the available summary regression evidence.

4.3 VAR Impulse Response Analysis

The impulse responses reinforce the panel results. A positive EAPU innovation is followed by a decline in economic activity. The effect becomes stronger over the first three to four months, then fades and approaches baseline within about one year. This pattern is consistent with a temporary contraction following an external uncertainty innovation, conditional on the recursive identification strategy.

Investment reacts more strongly than overall activity. Investment-proxy growth falls in the first months after the uncertainty innovation and then gradually returns toward baseline. The pattern is consistent with firms postponing capital expenditure when uncertainty is high and resuming it as uncertainty recedes.

Inflation responds much less. Confidence bands include zero over much of the horizon, suggesting that inflation is less sensitive to EAPU than real-activity measures in this sample.

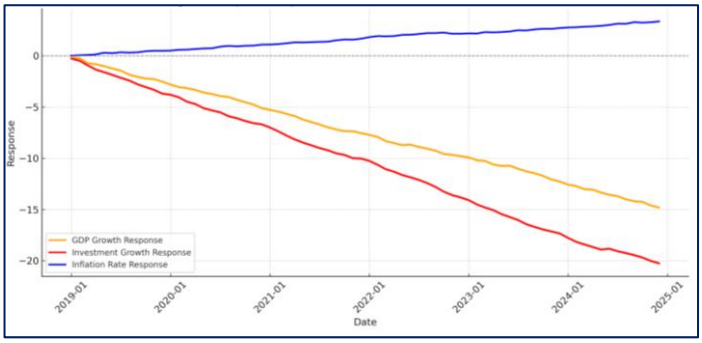


Figure 4. Impulse responses to an EAPU innovation, 2019–2024.

5. Discussion

The central finding is straightforward: when European policy uncertainty rises, economic activity and investment in the Western Balkans tend to weaken, while unemployment rises moderately. Investment is the most sensitive component. Inflation, by contrast, shows no robust response. The panel VAR points in the same direction, strengthening the overall consistency of the evidence.

This pattern fits the wait-and-see mechanism. When the future becomes less predictable, firms can gain by delaying investment and hiring—especially when decisions are costly or difficult to reverse. The strong investment response is therefore economically intuitive and consistent with international evidence on uncertainty, output, investment, and employment.

For the Western Balkans, however, the key point is that much of this uncertainty comes from outside the region. These economies are small, open, and closely connected to European markets. Uncertainty in Europe can therefore reach them through weaker external demand, changing financial conditions, lower investment flows, and more cautious expectations. EAPU captures this external European channel, not the full uncertainty faced by each country.

The results do not establish an unconditional causal effect of policy uncertainty on macroeconomic outcomes. The short sample, the common EAPU measure, and the overlap of major shocks between 2019 and 2024 limit causal interpretation. COVID-19, the war in Ukraine, energy-price shocks, and high inflation affected both uncertainty and macroeconomic conditions at the same time. The recursive VAR identification and robustness checks reduce some concerns but cannot remove them entirely.

The findings are therefore best read as robust conditional associations and model-based dynamic responses that are consistent with established economic mechanisms, rather than as definitive causal estimates.

5.1 Limitations

Four limitations deserve emphasis. First, the European EPU index is common to all five economies. This is justified by regional integration and the lack of comparable country-specific indices, but it does not capture domestic political, regulatory, or institutional uncertainty.

Second, monthly analysis requires proxies for variables that are not observed monthly. Industrial production growth serves as a high-frequency indicator of economic activity, while construction and capital-goods indicators approximate investment. These measures are useful for short-run analysis but are not equivalent to aggregate GDP or gross fixed capital formation.

Third, the 2019–2024 sample is short and unusually volatile. Large global shocks create useful variation in uncertainty, but they also make it difficult to separate policy uncertainty from simultaneous health, geopolitical, supply, energy, and inflation shocks.

Fourth, EAPU varies over time but not across countries. Identification therefore comes mainly from changes in European uncertainty over time, limiting our ability to identify country-specific or heterogeneous domestic uncertainty effects.

6. Conclusions and Policy Implications

This study examines how European Economic Policy Uncertainty is related to macroeconomic performance in five Western Balkan economies. Monthly panel regressions and panel VAR estimates tell a consistent story: higher European policy uncertainty is associated with weaker economic activity and investment and moderately higher unemployment. The relationship with inflation is much weaker and not statistically robust.

Investment stands out as the most uncertainty-sensitive component. This is consistent with a simple economic mechanism: when the future becomes harder to predict, firms postpone costly or irreversible decisions. The dynamic results suggest that the strongest effects occur in the months after an uncertainty innovation and then gradually fade.

The policy message is equally clear. Western Balkan governments cannot eliminate uncertainty that originates abroad, but they can reduce its domestic impact. Credible institutions, clear policy communication, predictable regulation, and adequate fiscal and financial buffers can make investment decisions less vulnerable when external uncertainty rises. Policy consistency is therefore not only an institutional objective; it is also a form of economic resilience.

Closer integration with the European Union has two sides. It can increase exposure to European shocks, but it can also strengthen institutional anchors, policy credibility, and access to mechanisms that support resilience. For Western Balkan economies pursuing EU convergence, the goal is not to eliminate uncertainty. It is to build institutions and policy frameworks strong enough to prevent external uncertainty from becoming a larger shock to investment, employment, and economic activity.

Future research can build on this analysis by developing country-specific uncertainty indices for the Western Balkans, extending the time series, and examining sectoral and cross-country differences. Complete replication archives would also strengthen future work. The broader lesson is simple: for small open economies, policy predictability and institutional resilience can complement traditional macroeconomic stabilization in limiting the effects of external uncertainty.

7. AI Use Statement

The authors declare that artificial intelligence tools were used during the preparation of this manuscript. Solely to support language editing, grammar correction, and improvement in clarity and readability. AI tools were not used to generate the research data, conduct the empirical analysis, or formulate the scientific findings and conclusions. The intellectual content, analysis, interpretation of results, and final approval of the manuscript remain the sole responsibility of the author(s).

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Appendix A. Available Diagnostic and Robustness Evidence

Table A1. Lag selection criteria

Lag	AIC	BIC	HQIC
1	−5.12	−4.90	−5.05
2	−5.45	−5.10	−5.30
3	−5.40	−4.95	−5.15
4	−5.30	−4.70	−4.90

Table A2. VAR stability diagnostics

Root #	Modulus	Within Unit Circle
1	0.75	Yes
2	0.60	Yes
3	0.50	Yes
4	0.45	Yes

Table A3. Granger causality test results

Dependent Variable	F-Statistic	p-Value
Economic Activity (IPI Proxy)	4.85	0.03
Investment	6.21	0.01
Unemployment	3.14	0.07
Inflation	2.01	0.16

Table A4. 2SLS instrument diagnostics

Model	First-Stage F-Stat	Hansen J-Stat	p-Value (J Test)
Economic Activity (IPI Proxy)	16.4	1.12	0.29
Investment	18.7	0.95	0.34

Table A5. Robustness check using U.S. EPU index

Variable	Coefficient (US EPU)	Std. Error	Significant
Economic Activity (IPI Proxy)	−0.45	0.12	Yes
Investment	−0.60	0.18	Yes
Unemployment	0.20	0.10	No

Table A6. Robustness using alternative economic-activity proxies

Proxy Used	EPU Coefficient	Std. Error	Significant
Retail Trade Index	−0.52	0.15	Yes
Economic Sentiment Indicator	−0.47	0.13	Yes

Table A7. Summary statistics and EAPU correlations

Variable	Mean	Range	Correlation with EAPU
Economic Activity (IPI Proxy)	~2.5%	−20% to +15%	−0.30
Unemployment Rate	~15%	5% to 30%	+0.25
Investment Proxy Growth	~3%	Deep troughs in 2020	−0.30
Inflation (CPI)	~5–8% (post-2022)	1–14%	+0.10 (ns)
EAPU Index	180	150–400	—

Table A8. Available summary panel-regression estimates

Dependent Variable	EAPU Coefficient (std.)	Significance	Interpretation
Economic Activity (IPI Proxy)	−0.8	$p < 0.01$	Negative association
Unemployment Rate	+0.2 to +0.5	$p < 0.05$	Moderate positive association
Investment Proxy Growth	−1.5	$p < 0.01$	Strong negative association
Industrial Production	−0.8	$p < 0.01$	Negative association
Inflation Rate	−0.1 (ns)	Not significant	Weak / statistically insignificant