

Macroeconomic implications of Economic Policy Uncertainty: Evidence from Cyprus

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“Truly the beauty of life is its uncertainty”

Essays in Idleness, Yoshida Kenkô

- The interest on uncertainty has increased due to the global financial crisis and the Euro Area crisis. Research has focused especially on the Economic Policy Uncertainty index (hereafter EPU; Baker, Bloom & Davis; 2016).
- Cyprus faced a severe financial crisis in 2012-2013, with a bail-in programme, bank deposits' haircut and capital controls enforcement.
- Lack of data for the Cypriot EPU index.

- Construction of the EPU index for Cyprus (monthly data, October 1999 - May 2022).
- Identification of the events that relate to rises of economic policy uncertainty.
- Estimation of Impulse Responses (hereafter IRF) of macroeconomic variables to EPU shocks in Cyprus, to examine the implications of uncertainty on the macroeconomy.

- Created by Baker, Bloom, and Davis (hereafter BBD, 2016).
- Answers to questions like:
 - Who will apply economic policy?
 - What kind of economic policy will be followed?
 - What regulations will the policy makers introduce?
 - What will the results of such regulations be for the economy?
- Based on textual analysis and newspaper coverage frequency.

Table 1: Economic Policy Uncertainty construction keywords

E	economic or economy
P	policy or Congress or deficit or regulation or legislation or Federal Reserve or White House
U	uncertain or uncertainty

- USA: macro-level data is used with a VAR model and the IRF that are applied to indicate the negative effect of uncertainty on industrial production, employment, and investment (Baker, Bloom Davis, 2016). Evidence shows that IRF of industrial production reach -1% and of employment -4%.
- Ireland: negative effects of uncertainty on industrial production and stock market indices. Results of the VAR model show that the IRF of industrial production reach -0.4%, but are statistically significant for a very short period. High and statistically significant correlation of the Irish EPU Index with the EPU Indices of other countries (Zalla, 2017).
- Japan: increases of EPU result in deterioration of output, employment and consumption. Real GDP IRF reach -0.3% (Arbatli et al., 2017).

- Sweden: negative response of GDP to uncertainty innovations. GDP growth responds directly to EPU shocks. Compares the effects of Swedish, US, European and German EPU indices on the Swedish GDP (Armelius et al., 2017).
- Chile: positive shocks of the EPU lead to fall in the GDP, investment and employment (Cerdeira et al., 2018). Specifically, employment IRF reach -7.5%.
- Spain: IRF of GDP reach -0.11% and investment IRF reach -0.9% (Ghirelli et al., 2018).
- Greece: The GIRF of stock market index and the ESI to positive EPU shocks are negative, and the GIRF of unemployment are negative (Tzika & Fountas, 2021). Industrial production has negative responses, which do not fade away quickly (Hardouvelis et al., 2018).

Table 2: Key-words for construction of the Cypriot EPU index

αβεβαιότητα ή ανησυχία ή αμφιβολία
ΚΑΙ
οικονομία
ΚΑΙ
πολιτική ή κυβέρνηση ή έλλειμμα ή προεδρικό ή καταθέση ή κούρεμα ή μεταρρύθμιση ή νόμος ή κυβέρνηση ή νομοθεσία ή βουλή ή απορρύθμιση ή υπουργείο ή "Κεντρική Τράπεζα Κύπρου" ή "Ευρωπαϊκή Κεντρική Τράπεζα" ή "διαρθρωτικές αλλαγές" ή "επιτροπή ανταγωνισμού" ή "ρυθμιστικό πλαίσιο" ή "επιτροπή κεφαλαιαγοράς"

Notes: All variants and derivatives of the words are taken into account for the query.

- 1 Count the number of articles (A_{it}) that contain the keywords per month (t) and per newspaper (i), as well as the total number of articles (B_{it}) that are published per month for each newspaper.
- 2 Scale the number of articles that contain the “EPU” set of words (A_{it}) by the total number of articles published by each newspaper for every month (B_{it}) and get the series X_{it} .
- 3 Split the sample into two subsamples T1 and T2. T1 is October 1999 to December 2009.
- 4 We standardise the X_{it} series for each newspaper to unit standard deviation, by dividing the X_{it} series with the standard deviation of T1 and get the series Y_{it} .
- 5 Estimate the mean value of all Y_{it} for all newspapers and get the series Z_t .
- 6 Normalise the Z_t series by dividing it with the mean value of Z_t for the period T1. Hence, we get the final EPU_t series.

Cypriot EPU index

Annotated graph

Figure 1

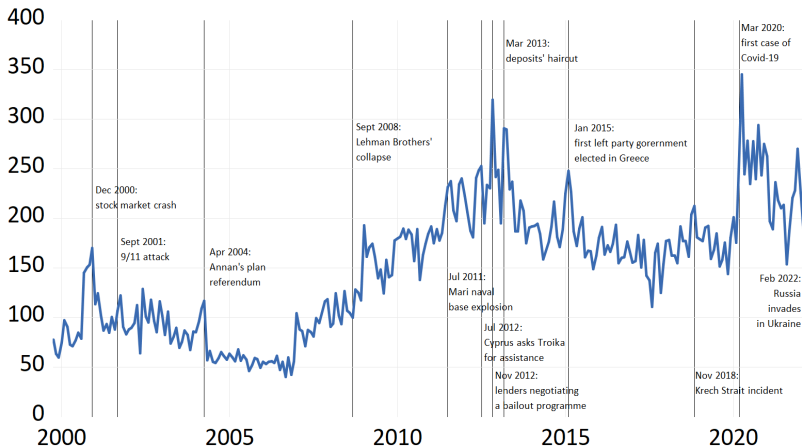


Table 3: EPU descriptive statistics before and after the GFC

	pre-GFC period	post-GFC period
mean	85.58	195.58
median	85.27	186.79
maximum	169.84	364.80
minimum	40.26	110.85
standard deviation	26.28	42.47

Notes: The pre-GFC period is defined as October 1999 to December 2008, while the post-GFC is defined from January 2009 until May 2022.

Table 4: Correlation of Cypriot EPU with other EPU indices

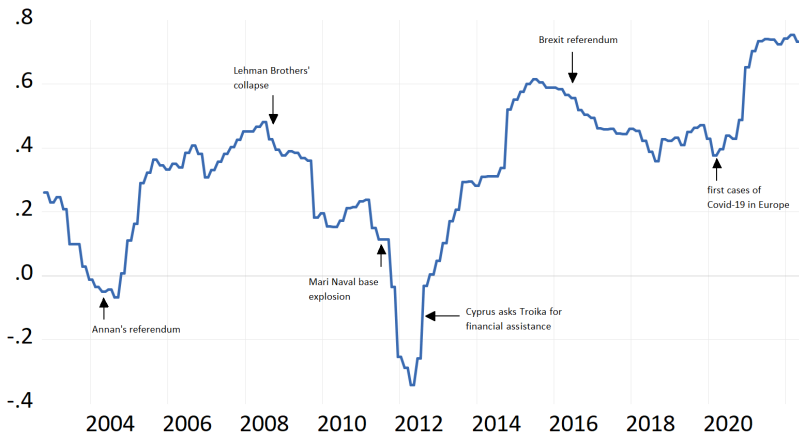
Europe	0.6831
Global	0.6650
France	0.6926
Germany	0.6026
Greece	0.4611
Ireland	0.5905
Italy	0.5127
Spain	0.7981
UK	0.5080
US	0.5654

Notes: All correlations included in this table are statistically significant, with probability equal to zero. Estimations are made for the sample January 2001 until May 2022, which is dictated by the EPU index data availability for all countries.

Cypriot EPU index

Rolling correlation with the European EPU index

Figure 2: Rolling correlation between the Cypriot and the European EPU indices



Notes: The correlation is estimated using a 36-month rolling window.

Quarterly data

Sample: 1999Q4 - 2022Q1

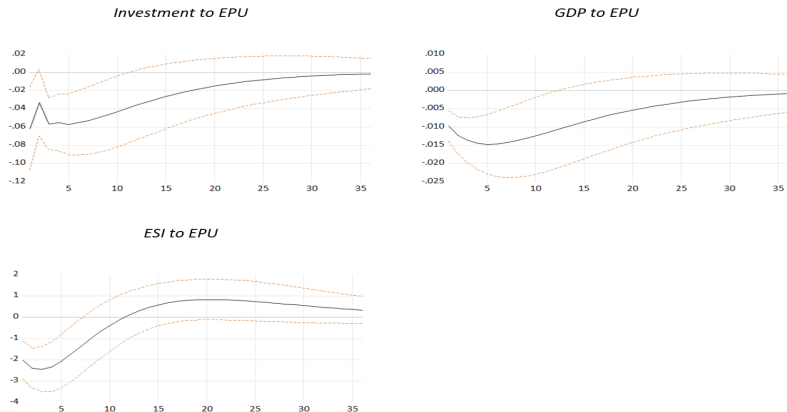
- EPU: created by authors based on BBD (2016) methodology
- investment: gross capital formation (Eurostat)
- GDP: chain-linked volume measures, base year=2015 (CyStat)
- Economic Sentiment Indicator (hereafter ESI, Eurostat)

VAR(4) model:

$$y_t = A_0 + A_1 y_{t-1} + \dots + A_p y_{p-1} + b t + e_t \quad (1)$$

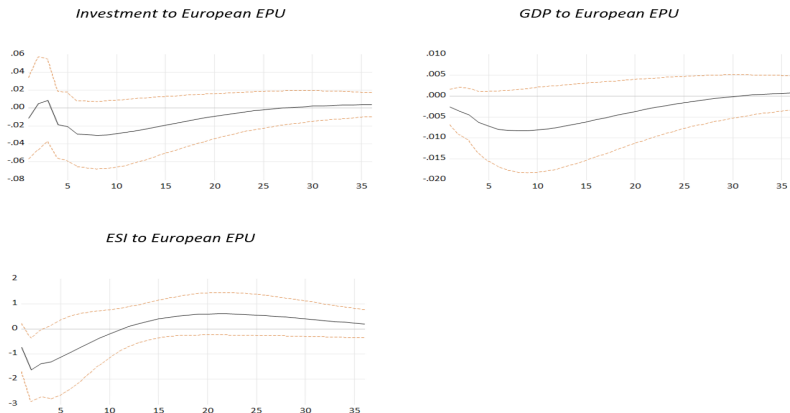
Generalised Impulse Responses

Figure 3: Generalised impulse responses to EPU shocks



Notes: Generalised impulse responses to one SD shocks (± 1 SE) on the Cypriot EPU index. Quarterly data. Sample: 1999Q4-2022Q1.

Figure 4: Generalised impulse responses to European EPU shocks



Notes: Generalised impulse responses to one SD shocks (± 1 SE) on the European EPU index. Quarterly data. Sample: 1999Q4-2022Q1

- Construction of the EPU index for Cyprus based on BBD methodology and examination of its effects on the Cypriot macroeconomy.
- Cypriot EPU index increases during important (domestic and international) events, Cyprus stock market crash, 9/11 attack, Lehman Brothers' collapse, Mari explosion, Cyprus crisis and deposits' haircut, Covid-19 pandemic, Russia-Ukraine war.
- IRFs show that GDP, investment, and the ESI respond negatively to EPU shocks.
- Macro variables of the Cypriot economy are affected more by domestic uncertainty compared to the European uncertainty.

Thank you for your attention.