# ECONOMIC POLICY UNCERTAINTY IN CENTRAL AMERICA AND THE DOMINICAN REPUBLIC

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Marina Diakonova, Corinna Ghirelli and Juan Quiñónez

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# ECONOMIC POLICY UNCERTAINTY IN CENTRAL AMERICA AND THE DOMINICAN REPUBLIC [(*)]

Marina Diakonova [(**)]

BANCO DE ESPAÑA

Corinna Ghirelli [(***)]

BANCO DE ESPAÑA

Juan Quiñónez [(****)]

CENTRAL AMERICAN MONETARY COUNCIL (SECMCA)

**Abstract**

The advent of Big Data and computational tools has transformed macroeconomic analysis, introducing real-time, high-frequency text-based indicators such as the economic policy uncertainty (EPU) index pioneered by Baker et al. (2016). However, constructing the EPU index for developing economies remains a challenge, mostly due to limited press coverage. Our study focuses on the Central American region, comprising Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama and the Dominican Republic (CAPADR). We construct country-specific EPU indices using a combination of local and regional sources and validate them using the narrative approach in order to ensure variation accurately reflects relevant economic policy events. We offer further empirical validation by computing impulse response functions for key macroeconomic variables, at both country and representative country level. We show that EPU shocks lead to a decline in economic activity, foreign direct investment (FDI) and tourism levels. Our findings underline the importance of EPU monitoring in Central America and offer a solution through our indices.

**Keywords:** economic uncertainty, economic policy uncertainty, text-based indicators, uncertainty shocks.

**JEL classification:** D8, C43, E2, E66.

## Resumen

La llegada de los grandes volúmenes de datos *(big data)* y las herramientas informáticas ha transformado el análisis macroeconómico, introduciendo indicadores textuales de alta frecuencia en tiempo real, como el índice de incertidumbre de la política económica (EPU, por sus siglas en inglés) desarrollado por Baker *et al.* (2016). Sin embargo, la construcción del índice EPU para las economías en desarrollo sigue siendo un desafío, sobre todo debido a la limitada cobertura por parte de la prensa. Nuestro estudio se enfoca en la región centroamericana, que comprende Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panamá y la República Dominicana (CAPADR). Construimos índices EPU específicos para cada país utilizando una combinación de fuentes locales y regionales y los validamos empleando el enfoque narrativo con el fin de garantizar que las variaciones reflejen con precisión los acontecimientos relevantes en materia de política económica. Ofrecemos una validación empírica adicional mediante el cálculo de las funciones de impulso-respuesta para variables macroeconómicas clave, tanto a nivel de país como de país representativo. Demostramos que las perturbaciones del índice EPU provocan un descenso de la actividad económica, la inversión extranjera directa (IED) y los niveles de turismo. Nuestros resultados subrayan la importancia del seguimiento de la EPU en América Central y ofrecen una solución a través de nuestros índices.

**Palabras clave:** incertidumbre económica, incertidumbre sobre las políticas económicas, indicadores textuales, *shocks* de incertidumbre.

**Códigos JEL:** D8, C43, E2, E66.

# Contents

# 1 Introduction

The advent of Big Data and the computation tools needed to process it has ushered in a new approach in the field of macroeconomic analysis: that of text-based indicators. One of the earliest examples is the seminal work by Baker et al. (2016), who constructed a press-based indicator of economic policy uncertainty (EPU), an index with a distinct advantage over traditional uncertainty proxies in that it is available at a higher frequency and in real time. The authors demonstrated that such indicators are able to capture economic intangibles such that the results correspond to intuition, meaning that periods of high perceived uncertainty coincide with increases in the indicators. Moreover, they showed that the resulting indices are informative for macroeconomic analysis. Specifically, Baker et al. (2016) note that innovations in policy uncertainty foreshadow declines in investment, output and employment in the United States and, in a panel vector autoregressive framework, in 12 major economies.

The technique used to construct the original EPU index (i.e. simple article counting based on a pre-defined dictionary) was immediately accessible and readily adaptable to other contexts. A large number of press-based indicators were soon developed, capturing phenomena ranging from social unrest (Barrett et al. (2022)), geopolitical risk (Caldara and Iacoviello (2022)) and polarization (Azzimonti (2018)). An alternative branch of such algorithm-based indicators focused on measuring sentiment (Loughran and Mcdonald (2011), Algaba et al. (2020) and Van Binsbergen et al. (2024)), with some authors advocating for this over uncertainty due to the insight it provides into the behavior of economic agents (Shapiro et al. (2022); see also Kalamara et al. (2022) for a comparative uncertainty-sentiment analysis).

Nevertheless, given both its proven usefulness and simple method of construction, measuring uncertainty using an a priori defined dictionary remains a staple tool in the macro-economist toolbox. The EPU dictionary requires fewer methodological choices than any sentiment-based measure, leading to its ostensibly greater objectivity; and for the same reason it is much more methodologically straightforward than other natural language processing tools such as topic models (Azqueta-Gavaldón et al. (2023)). Furthermore, it is readily obtainable using news-based aggregators that allow for limited Boolean searches but not for more complex analyses.

These are the main reasons why the EPU index and its variations are the natural first choice when measuring economically relevant intangibles. Indeed, a number of versions and variations have been developed since the release of the original index.[1] Baker et al. (2021) analyzed the behavior of markets the day following news releases related to important events. The authors found that policy announcements (fiscal or monetary) tend to affect the volatility of financial markets. During the COVID-19 pandemic, the high temporal resolution of these indicators proved to be particularly useful when determining

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**1** See https://www.policyuncertainty.com/ for the complete list.

the degree of uncertainty in a given region, with Baker et al. (2020) showing a rapid growth of uncertainty during the period.

Country-specific EPU indices have been constructed for many regions worldwide, but they are not available for many developing countries. And yet these are the areas that stand to benefit the most from such text-based indicators. First because smaller economies might have fewer resources available for developing timely and accurate macroeconomic indicators, and consequently, valid semi-automatic alternatives can contribute positively. Second because, more often than not, these countries tend to have policy agendas that are significantly influenced by their political landscapes, characterized by intense political confrontations and debates.

In this paper, we focus on the main economies in the Central American region commonly referred to as CAPADR (Central America, Panama and the Dominican Republic) and composed of Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama and the Dominican Republic. Currently, no uncertainty index focused on the countries of the CAPADR region has been developed. This paper seeks to address this gap and analyze the effect of uncertainty on various macroeconomic variables.

The countries that make up the CADR region (Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and the Dominican Republic) have a common institutional framework for the promotion of trade and financial integration, through which they aspire to become an economic union in the future, and thus participate as a block in international trade. In 2021, this region was the third and fifth largest economy in Latin America in terms of population (56.8 million inhabitants) and production (GDP valued at US$316 billion), respectively (Banco de España, 2022). Adding Panama to the CADR (becoming CAPADR), this region was the second and fourth largest economy in Latin America in terms of population and production.

The main challenge of developing the EPU index for developing economies is the lack of readily available digitized press archives with sufficient temporal coverage. One solution, proposed in Baker et al. (2016), is to use English-language sources, which tend to have good spatial and temporal coverage and limit the focus to the country in question. This approach works best for developed countries, which are sufficiently represented in the international press. However, the narratives for developing economies, and especially those with few economic ties to the English-speaking world, are less likely to be reflected in the major English-speaking newspapers. In these cases, it is the local press that conveys most of the information needed to construct an indicator of policy uncertainty.

Solving this tension between press relevance and availability is one of the contributions of this paper. We present a method for optimizing both relevance and temporal coverage by combining local newspapers and regional agencies. Moreover, this approach is applicable to other small countries as well.

There are two works of immediate relevance to our paper. In Ghirelli et al. (2019), the authors showed the crucial importance of local sources — and local terms — for accurate EPU measurement. In the second, Santana et al. (2020) used international sources to construct an EPU index for the Dominican Republic. These authors classified news articles and were able to tell which topics (business, oil or geopolitical) were driving international uncertainty.

The rest of the paper is structured as follows:  Section 2 presents our EPU indices for the Central American region. We explain how we deal with the limited availability of local sources and provide evidence and tests demonstrating the validity of our indices. Section 3.1 presents the macroeconomic data we use in the empirical application. In Section 3.2, we describe the Bayesian Vector Autoregression (BVAR) setup used to empirically validate our indices, while Section 4 presents the impulse response functions (IRFs) of GDP, foreign direct investment (FDI), IMAE (monthly economic activity index) and tourism to EPU shocks. Finally, Section 5 summarizes our findings and our contributions to the literature.

## 2 Constructing the EPU indices

In this section, we construct individual EPU indicators for the following Central American countries: Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama and the Dominican Republic. We follow the standard procedure used in this type of literature and quantify economic policy uncertainty by evaluating the relative attention paid to it by the press. Specifically, for each country and time period we count the number of articles that mention economic policy uncertainty, as well as the total number of articles, which is used for normalization purposes. We follow the word-counting procedure defined by Baker et al. (2016) and label an article as being about economic policy uncertainty if it contains at least one keyword in each of the following three categories: uncertainty, economy and policy. This means that each index is highly dependent on both the set of keywords and the types of press used for its computation. In the rest of this section, we first outline the keywords used in our queries (Section 2.1) and then list the news sources selected for each country (Section 2.2). Finally, we describe the construction of the index.

### 2.1 The keywords

To construct the EPU index for Central American countries, we rely on the following queries, in line with Ghirelli et al. (2019), who applied these to the case of Spain. As we consider Spanish-language sources, the terms are in Spanish. Each query is customized for each country and counts, in each newspaper considered, the number of articles containing at least one keyword related to the following concepts:

— **Uncertainty**: *inciert\** or *incertidumbr\** or *inestabl\** or *inestabilidad(es)* or *riesgo(s)\**;

— **Economy**: *economic\** or *economía* or *comercio(s)*;

— **Policy:** the name of the central bank of the country, the name of the government's place of work in the country, *Asamblea Legislativa* or *Parlamento* or *congreso* or *gobierno* or *Reserva Federal* or FED or *Hacienda* or *ministerio de economia y finanzas* or MEF or *tipo\* de cambio* or *regimen\* cambiario\** or *dolarizacion\** or *fiscalia* or *corrupcion\** or *arancel(es)* or *tributacion(es)* or *déficit(s)* or *presupuesto\** or *gasto publico(s)* or *deuda(s) publica(s)* or *política(s) fiscal(es)* or *política(s) monetaria(s)* or ((*el* or *de* or *del* or *un* or *por* or *este* or *ese* or *aquel)* w/1 *impuesto)*[2] or *impuestos* or *Legislación(es)* or *reforma(s)* or *norma(s)* or *normativa\** or *regulación(es)* or *reglamento(s)* or *ley(es)* or ((*el* or *de* or *del* or *un* or *por* or *este* or *ese* or *aquel)* w/1 *tratado)*[3] or *tratados* or *ratificacion(es)*.

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**2** Determiners are included to ensure that we capture sentences in which *impuesto* is a noun (meaning taxes) and not the past participle of the verb *imponer,* meaning to impose.

**3** Determiners are included to ensure that we capture sentences in which *tratado* is a noun (meaning treaty) and not the past participle of the verb *tratar,* meaning to treat.

With respect to the keywords used in Ghirelli et al. (2019), we add a few specific terms that we believe help capture uncertainty-related events associated with the countries of interest. Specifically, these are:

— *Tipo\* de cambio* or *regimen\* cambiario\** or *dolarizacion\*:* included in the **policy** block since Central American countries rely heavily on the US dollar;

— *Fiscalia* or *corrupcion\**: included in the **policy** block since these countries have faced several episodes of administrative corruption or political crimes;

— *Comercio(s)*: included in the **economy** block since trade within the region and with external countries (such as the United States) is very important in these economies. It may also capture trade agreements;

— *Tratado(s)* or *ratificación(es)*: included in the **policy** block to capture articles on trade agreements.

Note that in the query for the supranational sources, to minimize false positives we add an extra requirement that the article mentions the country of interest.

## 2.2  News sources

To access newspaper articles, we rely on the Factiva repository provided by Dow Jones. For each country, we first consider local (national) sources, when available. Chart 1 shows the time coverage of national newspapers available in Factiva. It is clear that the availability of local sources is limited: either they are available only in the most recent period or — at the other extreme — local sources are absent altogether, as is the case for the Dominican Republic.

To address this problem, we combine local press with supranational press, that is, Spanish-language agencies with a focus on the region. The temporal coverage of selected supranational sources is shown in Chart 2, and in Tables A1.a and A1.b in Section A of the Appendix.

Our reasoning for joining these apparently disparate press sources is twofold. First, the local press is the best choice when available, since it provides the cleanest source of information to learn about the local narrative. This is especially true when the country of interest is small and unlikely to be covered by the international press. Second, Andres-Escayola et al. (2013) suggest that it is best to use as many sources as possible when constructing text-based indicators. Hence, we add all available supranational press to our local coverage,[4] which in turn provides a common baseline press coverage for all the countries in our analysis.

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4  Another option could be to add the international newspaper press, rather than international agencies (such as the Spanish or English language press). However, we find that these countries are insufficiently covered by both types of press, so that including the former in the analysis would not have helped. If anything, it may have decreased the quality of the indicator by introducing noise.

Chart 1
**Local press: time coverage by source and country**
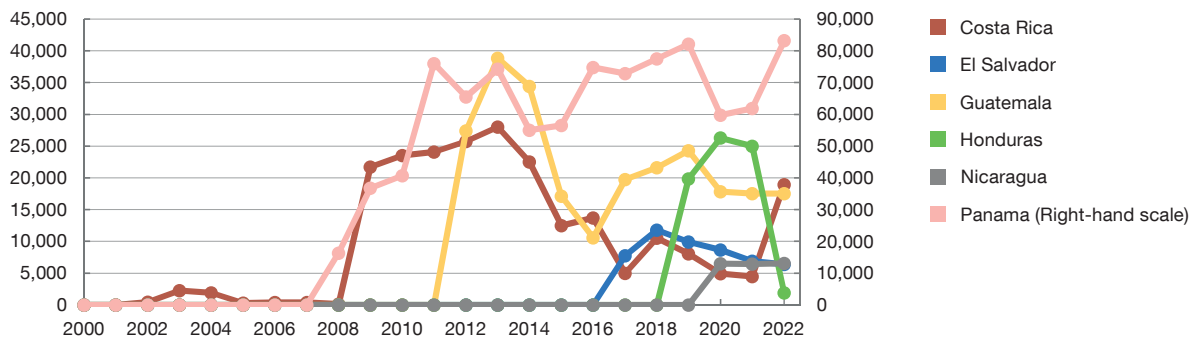
SOURCE: Factiva.

a  Each dot represents the yearly volume of articles available in each country for that year. The data shown are a sum of all the newspapers we consider for the country. The complete breakdown by year and newspaper is shown in Tables A1.a and A1.b in Appendix A.

Chart 2
**Supranational press: time coverage by source and country**
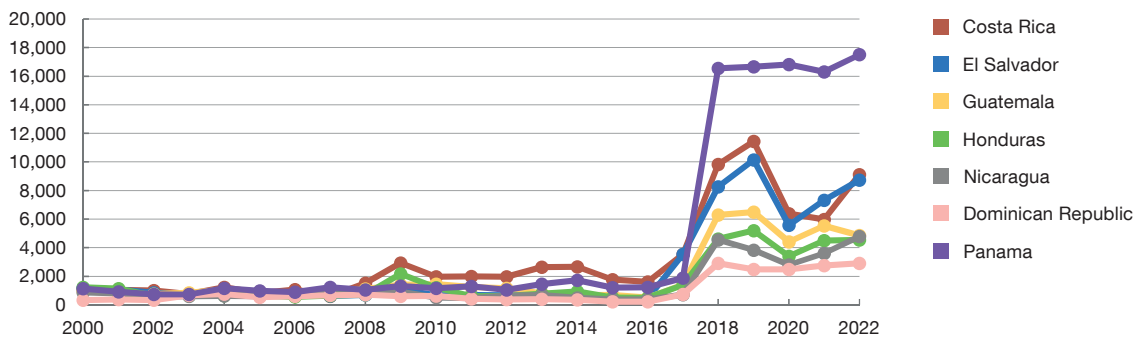
SOURCE: Factiva.

a  Each dot represents the yearly volume of articles published in the supranational press and related to each country. The exact numbers are shown in Table A2 in Appendix A.

Given the availability of supranational sources, the time coverage for our EPU indices starts from October 2002. We consider all the sources behind Charts 1 and 2. These are:

**Local press:**

— Costa Rica: *La nación; El financiero; El jornal.*

— El Salvador: *La Prensa Gráfica.*

— Guatemala: *La Prensa Libre.com.*

— Honduras: *La Tribuna; Criterio; La Prensa.*

— Nicaragua: *La Prensa*.

— Panama: *ANPanamá Agencia de Noticias; Crítica (printed and digital news); Decisiones Panamá; El siglo; La Estrella; Panamá America; La prensa; La verdad de Panamá (online news).*

— Dominican Republic: no local sources.

**Supranational press:**

— Reuters LATAM; Source country: Spain. Available from October 1994.

— Reuters España; Source country: Spain. Available from May 1994.

— CE Noticias Financieras; Source country: US. Available from November 2002.

As can be seen in Charts 1 and 2, supranational sources for all the countries considered are already present from the year 2000, whereas local sources begin to be available only much later. This discrepancy in the times at which different types of press outputs become available presents a possible problem in that the resulting indicator might show a jump around the time at which the more recent sources become available.

In principle, this is already taken care of by the way in which the indicator is constructed, since the signal coming from each source is divided by the total number of articles published in that source (Baker et al., 2016). This ensures that our final indicator does not reflect artificial jumps caused by the sudden increase in the available articles whenever a new source comes in. This is standard in the literature.

It is nevertheless possible that the introduction of a new source in the middle of the sample may lead to structural jumps, simply because it may be more likely to report on issues related to economic policy uncertainty than the existing sources. To formally check that the introduction of local sources does not result in such structural jumps, we run a number of tests formally comparing the distribution of the indicator based on certain subsets of press before and after their inclusion. These tests are available on request. We conclude that the only country likely to suffer these qualitative jumps is Nicaragua.

## 2.3 Computing the indices

The evaluation of the indices closely follows the procedure used by Baker et al. (2016). First, for each newspaper we count the number of articles published in a given month that contain words from the aforementioned blocks of keywords. Second, we express this count as a proportion of articles published by the newspaper in that month. Third, we standardize each monthly series of scaled counts by dividing it by its standard deviation. This makes the volatility of the series comparable across newspapers. Fourth, for each country we average the newspaper-based standardized series across newspapers to compute an aggregated index. Fifth, we rescale the resulting index to mean 100 to obtain a set of homogeneous country-based EPU indicators (Andres-Escayola et al., 2013).

## 2.4 Narrative validation

Uncertainty is an unobserved variable in the sense that there is no objective way to measure economic policy uncertainty. To validate the EPU indices constructed in this paper, we compare them with historical events that have marked the economies of the region. To this aim, Charts B.1-B.7 show the evolution of the EPU index for each country and highlight important events.

In general, this methodology correctly captures the episodes related to electoral periods and shocks from natural events (such as earthquakes, volcanic eruptions or storms). Likewise, this indicator is sensitive to the opinions of international organizations, such as the International Monetary Fund (IMF) and the World Bank (WB), or other institutions that produce assessments of the economic activity of the countries in the region.

Analyzing the cases of Costa Rica (Chart B.1) and the Dominican Republic (Chart B.7), it is observed that the main peaks of uncertainty are related to presidential elections (especially when changes of government have occurred) and to publications by international organizations highlighting declining growth projections or other macroeconomic indicators.

Guatemala's EPU index (Chart B.3) shows peaks at times when news related to corruption cases and publications from institutions that monitor these cases (such as Amnesty International) were published. Similarly, the indicator for Panama (Chart B.6) shows higher uncertainty values when news reports highlight legislative weaknesses in the country, and specifically when it was categorized as one of the region's tax havens. The index also reacts to publications from the Financial Action Task Force, an institution that leads global action to tackle money laundering, terrorism and proliferation financing.

El Salvador (Chart B.2), Honduras (Chart B.5), and Nicaragua (Chart B.4) show EPU values of 0 due to a lack of media coverage in certain periods. However, in the case of El Salvador the peaks of uncertainty are associated with macroeconomic issues (2009-2013) and with financial issues related to the incorporation of cryptocurrencies into the financial

system. For Honduras and Nicaragua, political issues are the main source of uncertainty, especially a coup d'état (in Honduras in 2009) and presidential elections.

In conclusion, despite the limitations due to data availability, this methodology adequately captures the main social, political and economic events that have marked the different countries of the CAPADR region.

## 3 Empirical analysis

This section aims to reinforce the validity of our EPU indicators by empirically testing whether economic variables of interest (GDP, FDI, tourist activity) are affected by EPU shocks in a manner in line with what is expected according to theory. To this aim, we follow the standard approach used in this field and compute the impulse response functions (IRFs) in the context of a Vector Autoregression (VAR) model. First, we introduce the macroeconomic variables that we use for this purpose, and second, we lay out the model design.

### 3.1 Macro data

The variables used in this analysis are listed in Table 1, along with details about sources and implemented transformations. Additional details about the macroeconomic data used are available on request.

Table 1
**Variable descriptions**

| Variable | Definition | Transformation | Source |
|---|---|---|---|
| GDP | Real gross domestic product | YoY (a) | SECMCA (b) |
| IMAE | Monthly economic activity index - seasonally adjusted | YoY | SECMCA |
| Tourism IMAE | Monthly economic activity index for the tourism sector-seasonally adjusted | YoY | SECMCA |
| CPI | Consumer price index | YoY | SECMCA |
| FDI | Foreign direct investment | Levels | SECMCA |
| EMBI | Emerging market bond index | Levels | JP Morgan |

**SOURCE:** Factiva.

a   YoY refers to year-on-year growth rates.
b   The SECMCA database is available here https://www.secmca.org/secmcadatos.

### 3.2 Methodology

The models we use contain the following variables, in this order:

1   the EPU index in levels;

2   the EMBI index in levels, as a proxy for country risk;[5]

3   economic variables of interest: GDP (growth rates), foreign direct investment (FDI) in levels; tourist activity (growth rates);

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5   The EMBI is calculated as the spread between US bonds and the corresponding emerging-market bonds. It is a JP Morgan index and is considered the main indicator of country risk for emerging markets.

4   the headline consumer price index (CPI) in growth rates (seasonally adjusted), to
    control for price dynamics.

The EPU index is the indicator from which the structural shock originates. GDP
growth captures activity in the economy and is our main target variable for the impulse
response analysis.

We rely on recursive identification à la Cholesky to identify the structural shocks
in the model. The order of variables can be justified as follows. The EPU variables affect
country risk, activity and inflation contemporaneously. Country risk affects GDP and inflation
immediately but does not affect uncertainty. Instead, GDP responds to shocks to policy
uncertainty and country risk in the same period but does not react to inflation. Lastly, inflation
is contemporaneously responsive to economic events (country risk and GDP shocks), as
well as to EPU shocks. Ordering the EPU variables before the economic variables implies
that the former react contemporaneously only to their own shocks and that movements in
policy uncertainty are unrelated to the business cycle.

All VAR models are estimated using Bayesian techniques (BVAR). This type of
estimation is particularly relevant for our application since we are dealing with a short
sample, due to low data availability; therefore, this shrinkage method allows us to minimize
overparameterization issues. We impose the Minnesota prior on the VAR parameters, as is
common in the literature.

We use data from 2003 Q1 to 2022 Q4 and control for the COVID crisis by adding
COVID-period dummies. The specification is estimated including 1 lag of the endogenous
variables and optimal maximum lags according to the deviance information criterion (DIC).

Even though our data are in principle available at the quarterly level, the time series
are quite noisy. The following reasons can explain this. First, the EPU series may be noisy due
to the limited availability of sources. Second, macroeconomic series for small countries may
be imprecise, and this could also generate noise. To minimize this problem, we aggregate
our variables at the yearly level and run the estimation at the annual frequency. This helps
identify the relevant relationship between the variables of interest (EPU and economic
variables), disregarding the high-frequency variation. We believe that this is appropriate
since the objective of this section is to identify a qualitative relationship to validate the EPU
indicator.

Nevertheless, we also employ an alternative methodology as a robustness check.
To that aim, we follow the approach detailed in Rivas and Perez-Quiros (2012) in constructing
a representative Central American country.[6] This is effectively a pooling together of all the
constituent countries in order to obtain a much longer time series, with the idea that more

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6   In Rivas and Perez-Quiros (2012), the authors instead discuss a virtual country, but given that our exercise is centered
    on a specific region, we feel that a representative country reflects our aim somewhat better.

data results in a more accurate model. Naturally, there is an underlying assumption that the dynamics of the countries are sufficiently similar to ensure that the effective unique coefficients are in some ways meaningful.

The representative country setup is similar to the more standard approach of simply pooling data. The main difference between the two is that instead of padding the "temporal space" between countries, here the data are stacked contiguously. In order for this continuity not to confuse the algorithms, each country's time series is first normalized to have the mean and the standard deviation of the entire sample. A common robustness check is to then vary the order in which countries are placed, although Rivas and Perez-Quiros (2012) note that, at least in their context, shuffling the countries makes no difference.

## 4 Results

We report the outcomes of two different approaches: country-specific BVARs and a BVAR analysis of the representative country. In order to deal with the highly relevant issue of noisy data, both models are computed at an annual frequency. For both approaches, we show the impulse responses of GDP, FDI and the IMAE to an unexpected one-standard-deviation shock in the proposed EPU index. Such a shock is equivalent to the following events: 2015 in Costa Rica, with Fitch lowering the sovereign bond credit risk; 2005 in Guatemala, with Amnesty International voicing concerns over corruption; 2021-2022 in Honduras, following enactment of the Statute of Limitations law; the 2021 presidential elections in Nicaragua; 2011-2012 in Panama, with the uncertainty regarding the poor US economic performance; and 2011 in El Salvador, with similar uncertainty amid an economic recovery.[7]
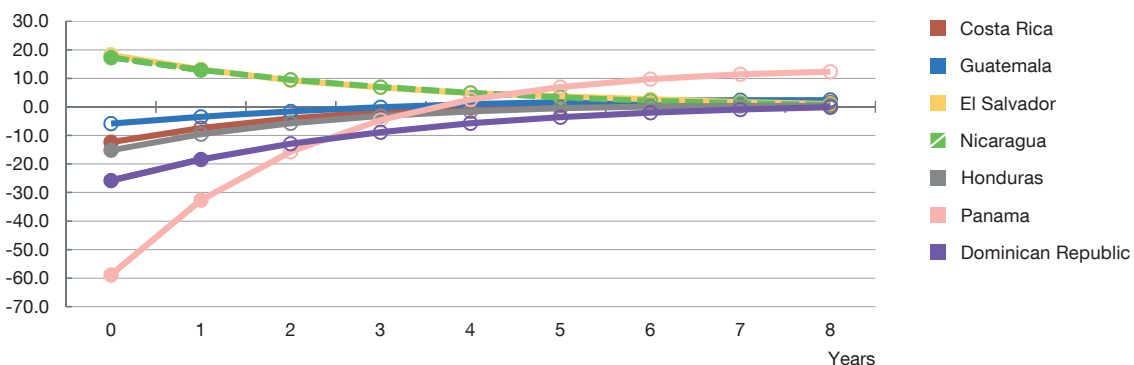
The IRFs for individual countries are shown in Chart 3. First, it is clear that, in general, the responses correspond to prior expectations of the effects of an EPU shock.

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Chart 3
**Individual countries' BVAR (a)**

3.a GDP growth
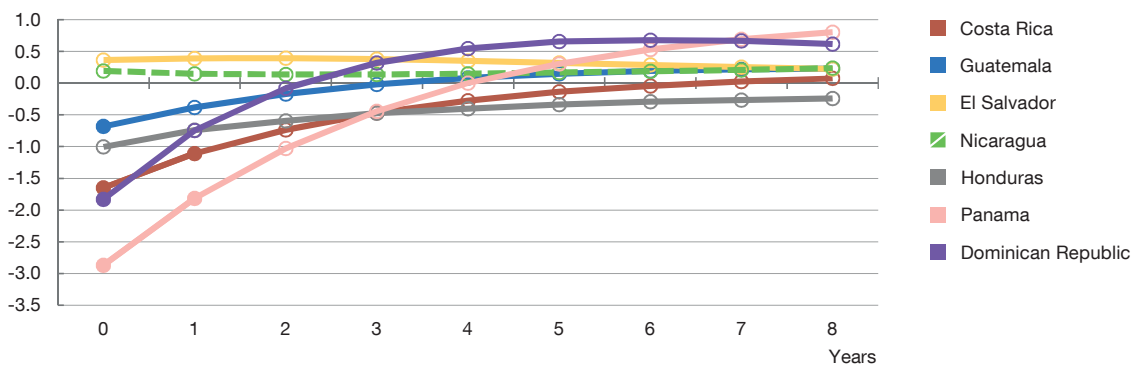


3.b FDI



SOURCE: Factiva.

**a** BVAR estimated with one lag, based on yearly data for each country, separately. Filled dots indicate statistical significance within the 84%-16% credible set, while empty dots represent non-significant estimates. The horizontal axis measures years since the shock. Results for tourism are not available for Guatemala and the Dominican Republic due to data unavailability.

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7 We use the frequentist VAR approach to identify the shocks, given the similarity of the results to the Bayesian technique.

Chart 3
**Individual countries' BVAR (cont'd) (a)**

3.c  Activity growth (IMAE)



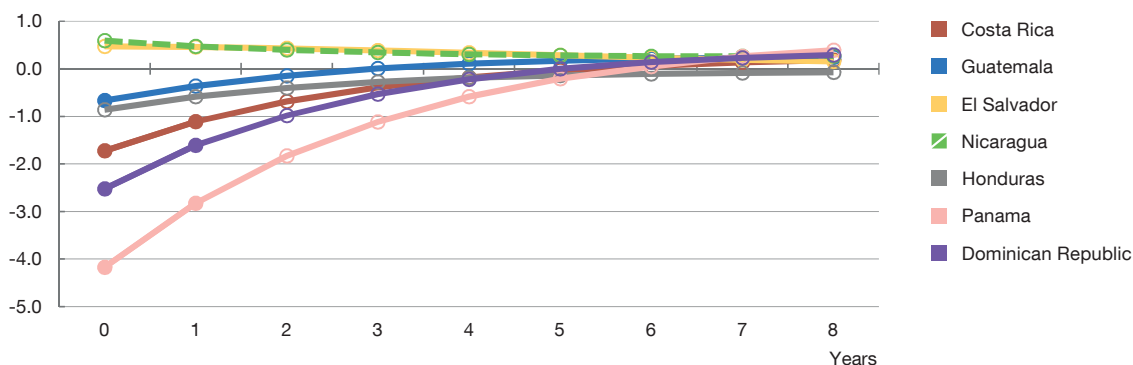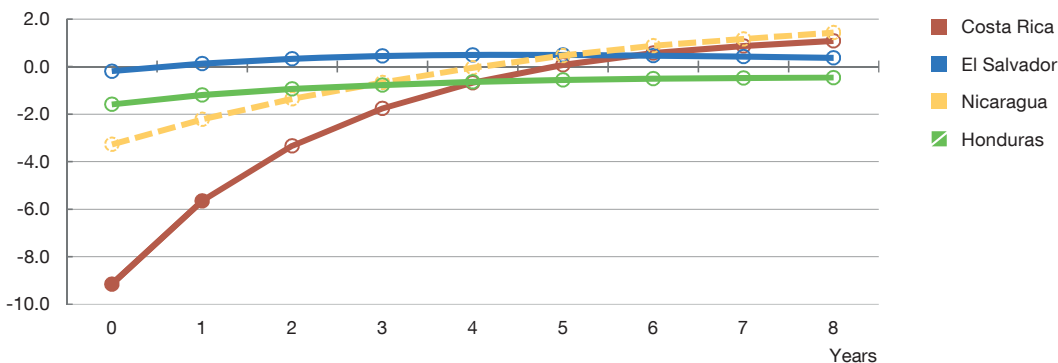3.d  Tourist activity growth (IMAE)



**SOURCE:** Factiva.

**a**  BVAR estimated with one lag, based on yearly data for each country, separately. Filled dots indicate statistical significance within the 84%-16% credible set, while empty dots represent non-significant estimates. The horizontal axis measures years since the shock. Results for tourism are not available for Guatemala and the Dominican Republic due to data unavailability.

On average, effects on all four macroeconomic variables are mostly negative, with a drop in activity followed by a mostly monotonic return to baseline within 3-4 years. The most consistent response is shown by tourist activity. For the four countries for which data are available, an EPU shock implies a drop and then a somewhat slow return to the pre-shock level.

There are important differences by country. First, we see that Costa Rica and the Dominican Republic are the only two countries whose responses are statistically significant. Second, the strongest — though also the most volatile — response is from Panama. Both Costa Rica and Panama are particularly well-represented in terms of local press in our sample, adding weight to the argument that local press coverage is key for accurate EPU measurement in developing economies. A point to note is that Panama's responses appear to overshoot the baseline on longer timescales rather than return to normal; this behavior is fundamentally different from the trends seen in the other countries. Given that Panama is

also one of the two economies based on the US dollar, it is tempting to link the distinction to different underlying dynamics, where there are more variables effectively at play (e.g. US-related macroeconomic or financial variables). Meanwhile, El Salvador and Nicaragua exhibit the smallest responses to an EPU shock, in the case of FDI even showing a marked initial increase.

The representative country analysis is qualitatively similar, with results in line with the individual country results (Chart 4). The response of all four macroeconomic variables to a single-standard-deviation shock in economic policy uncertainty is an instantaneous drop, followed by an overshoot to baseline and a subsequent return to the background value. The initial reaction is short-lived, with indicators returning to their standard values within the first year of the shock. It is worth noting that models with the optimal lag (which in many — though not all — cases corresponds to one lag) do not differ much from those with one lag.

Chart 4
**Representative Central American country: BVAR**

4.a  GDP growth
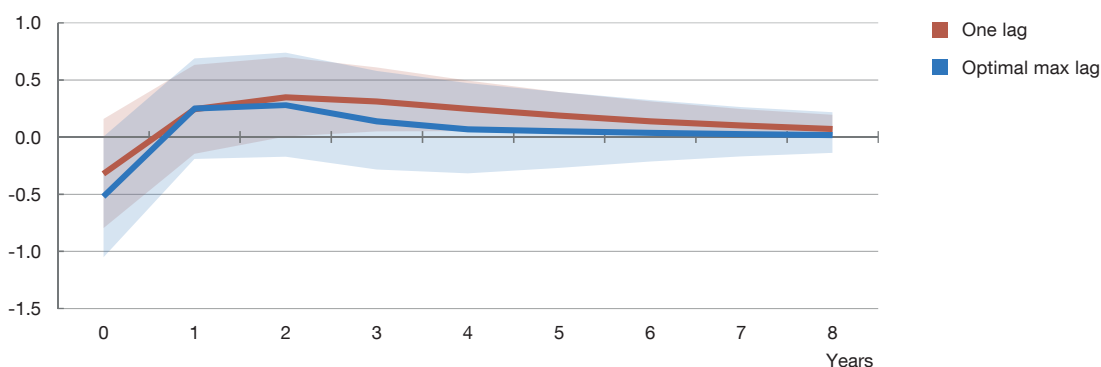


4.b  FDI
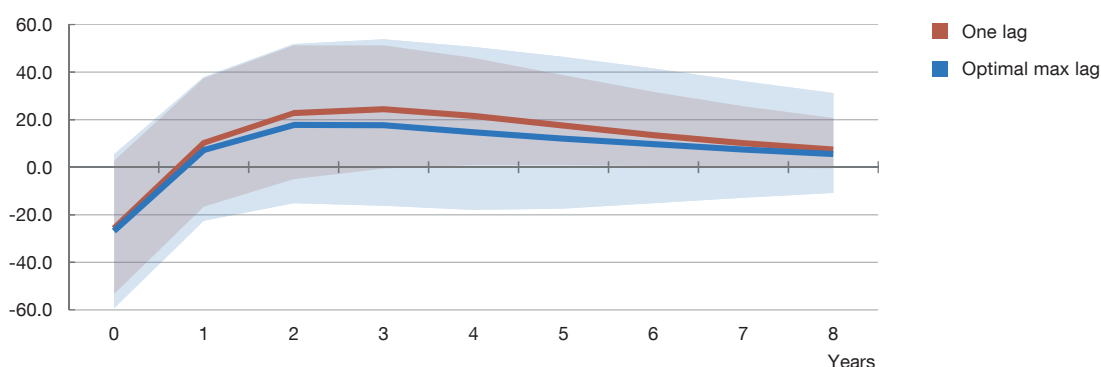


**SOURCE:** Factiva.

**a** Optimal max lags are chosen according to the deviance information criterion (DIC). Confidence intervals indicate statistical significance within the 84%-16% credible set. The horizontal axis measures years since the shock.

Chart 4

**Representative Central American country: BVAR (cont'd)**

4.c  Activity growth (IMAE)



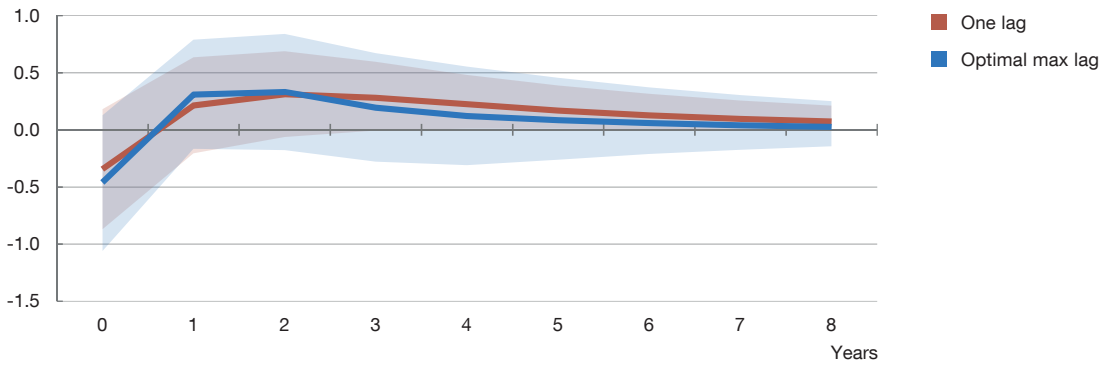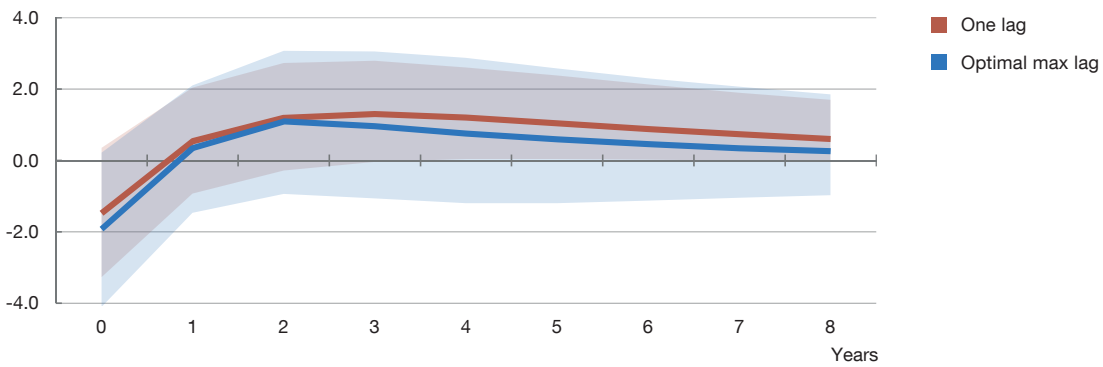4.d  Tourist activity growth (IMAE)



**SOURCE:** Factiva.

a  Optimal max lags are chosen according to the deviance information criterion (DIC). Confidence intervals indicate statistical significance within the 84%-16% credible set. The horizontal axis measures years since the shock.

## 5  Conclusions

In this paper we address the outstanding problem of constructing an economic policy uncertainty indicator for Central American economies. One of the main reasons behind the challenge is the difficulty in obtaining sufficient press coverage for each individual country with sufficient robustness and temporal coverage to produce an informative indicator. We tackle this issue by constructing a combination index, supplementing local sources with focused supranational coverage. Each local index was constructed by adapting the EPU-related terms to country specifics. The resulting indices were validated using a narrative approach, obtaining assurance that the reported trends accurately reflect events relevant to economic policy.

We validated our indices empirically by computing impulse response functions of the main macroeconomic variables to a shock in the proposed EPU indicators. In order to accurately assess this relationship in a context of potentially noisy/scarce data, we employed the BVAR framework, aggregating data at the annual level, and finally pooling the datasets to construct a representative Central American country. Our results demonstrate that the standard impacts of EPU shocks carry over to Central America as a whole: an EPU shock leads to a drop in economic activity, FDI and tourism levels, with a slow return to the background value over a number of years.

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## A. Sources

Table A1.a
**Local press: time coverage by source and country (a)**

| Country | Costa Rica | | | Honduras | | Guatemala | El Salvador | Nicaragua |
|---|---|---|---|---|---|---|---|---|
| Newspaper | *La Nación* | *El Financiero* | *El Jornal* | *Criterio* | *La Tribuna* | *Prensa Libre* | *La Prensa Gráfica* | *La Prensa* |
| 2002 | 440 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2003 | 2,273 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2004 | 1,901 | 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2005 | 228 | 86 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2006 | 275 | 116 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2007 | 281 | 90 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2008 | 136 | 12 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2009 | 21,696 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2010 | 23,520 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2011 | 24,096 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2012 | 25,733 | 6 | 0 | 0 | 0 | 27,425 | 0 | 0 |
| 2013 | 28,005 | 2 | 0 | 0 | 0 | 38,845 | 0 | 0 |
| 2014 | 22,519 | 6 | 0 | 0 | 0 | 34,433 | 0 | 0 |
| 2015 | 12,379 | 121 | 0 | 0 | 0 | 17,122 | 0 | 0 |
| 2016 | 11,498 | 2,182 | 0 | 0 | 0 | 10,583 | 0 | 0 |
| 2017 | 3,771 | 1,205 | 0 | 0 | 0 | 19,775 | 7,746 | 0 |
| 2018 | 9,960 | 563 | 0 | 0 | 0 | 21,627 | 11,792 | 0 |
| 2019 | 7,413 | 649 | 0 | 19,875 | 0 | 24,287 | 9,937 | 0 |
| 2020 | 4,071 | 844 | 0 | 26,297 | 6,496 | 17,827 | 8,667 | 6,496 |
| 2021 | 3,447 | 1,036 | 0 | 24,977 | 6,457 | 17,510 | 6,878 | 6,457 |
| 2022 | 16,294 | 2,379 | 262 | 0 | 6,548 | 17,524 | 6,411 | 6,548 |

**SOURCE:** Factiva.

**a** Tables A1.a and A1.b report the disaggregated figures behind the local press coverage (Chart 1), giving the number of articles appearing in each newspaper in each year.

**Local press: time coverage by source and country (a)**

| Country | | | | | Panama | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Newspaper | ANPanamá | Critica Online | Critica | Decisiones Panama | El Siglo | La Estrella | Panamá América | La Prensa | La Verdad Panamá |
| 2002 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2003 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2004 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2005 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2006 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2007 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2008 | 0 | 0 | 0 | 0 | 13,031 | 3,281 | 0 | 0 | 0 |
| 2009 | 0 | 0 | 0 | 0 | 32,438 | 4,382 | 0 | 0 | 0 |
| 2010 | 0 | 0 | 0 | 0 | 29,685 | 11,022 | 0 | 0 | 0 |
| 2011 | 0 | 0 | 0 | 0 | 16,367 | 59,630 | 0 | 0 | 0 |
| 2012 | 0 | 0 | 0 | 0 | 21,621 | 43,854 | 0 | 0 | 0 |
| 2013 | 0 | 0 | 0 | 0 | 22,915 | 51,398 | 0 | 0 | 0 |
| 2014 | 809 | 0 | 0 | 0 | 17,810 | 36,361 | 0 | 0 | 0 |
| 2015 | 2,430 | 15,439 | 1,679 | 0 | 11,648 | 23,357 | 2,003 | 0 | 0 |
| 2016 | 2,198 | 23,853 | 10,495 | 0 | 11,492 | 19,290 | 7,475 | 0 | 0 |
| 2017 | 1,493 | 24,703 | 10,291 | 0 | 6,734 | 22,710 | 6,961 | 0 | 0 |
| 2018 | 638 | 21,388 | 11,742 | 0 | 16,571 | 19,498 | 7,638 | 0 | 0 |
| 2019 | 994 | 20,420 | 14,648 | 0 | 14,420 | 20,545 | 11,160 | 0 | 0 |
| 2020 | 1,373 | 15,917 | 5,126 | 0 | 13,331 | 14,644 | 9,379 | 0 | 0 |
| 2021 | 875 | 10,489 | 4,927 | 0 | 14,571 | 18,489 | 6,727 | 5,643 | 168 |
| 2022 | 1,983 | 9,518 | 4,141 | 946 | 16,522 | 17,830 | 7,338 | 18,222 | 6,727 |

**SOURCE:** Factiva.

**a** Tables A1.a and A1.b report the disaggregated figures behind the local press coverage (Chart 1), giving the number of articles appearing in each newspaper in each year.

**Supranational press: time coverage by source and country (a)**

| Country | Costa Rica | El Salvador | Guatemala | Honduras | Nicaragua | Dominican Republic | Panama |
|---|---|---|---|---|---|---|---|
| 2000 | 1,102 | 1,178 | 961 | 1,230 | 880 | 323 | 1,130 |
| 2001 | 1,042 | 1,081 | 781 | 1,140 | 812 | 388 | 910 |
| 2002 | 996 | 837 | 769 | 622 | 590 | 344 | 741 |
| 2003 | 757 | 697 | 854 | 625 | 595 | 676 | 725 |
| 2004 | 1,231 | 823 | 1,064 | 649 | 619 | 761 | 1,157 |
| 2005 | 828 | 698 | 941 | 644 | 600 | 545 | 984 |
| 2006 | 1,080 | 636 | 828 | 556 | 698 | 597 | 882 |
| 2007 | 609 | 618 | 921 | 654 | 846 | 666 | 1,234 |
| 2008 | 1,517 | 687 | 1,109 | 714 | 740 | 712 | 1,040 |
| 2009 | 2,933 | 1,063 | 1,404 | 2,170 | 922 | 602 | 1,321 |
| 2010 | 1,961 | 674 | 1,462 | 1,210 | 508 | 626 | 1,169 |
| 2011 | 1,984 | 696 | 1,246 | 596 | 472 | 422 | 1,303 |
| 2012 | 1,976 | 670 | 1,160 | 618 | 651 | 381 | 1,039 |
| 2013 | 2,649 | 641 | 794 | 783 | 699 | 400 | 1,453 |
| 2014 | 2,664 | 802 | 696 | 947 | 488 | 364 | 1,713 |
| 2015 | 1,765 | 549 | 693 | 522 | 380 | 222 | 1,208 |
| 2016 | 1,607 | 448 | 506 | 495 | 381 | 216 | 1,228 |
| 2017 | 3,540 | 3,535 | 1,417 | 1,393 | 717 | 746 | 1,871 |
| 2018 | 9,824 | 8,255 | 6,282 | 4,601 | 4,542 | 2,909 | 16,547 |
| 2019 | 11,435 | 10,146 | 6,498 | 5,200 | 3,833 | 2,485 | 16,660 |
| 2020 | 6,387 | 5,567 | 4,414 | 3,394 | 2,802 | 2,487 | 16,821 |
| 2021 | 5,972 | 7,328 | 5,537 | 4,497 | 3,610 | 2,763 | 16,305 |
| 2022 | 9,112 | 8,724 | 4,864 | 4,538 | 4,788 | 2,905 | 17,505 |

**SOURCE:** Factiva.

a  The numbers indicate the yearly volume of articles available in the three supranational sources for each country.
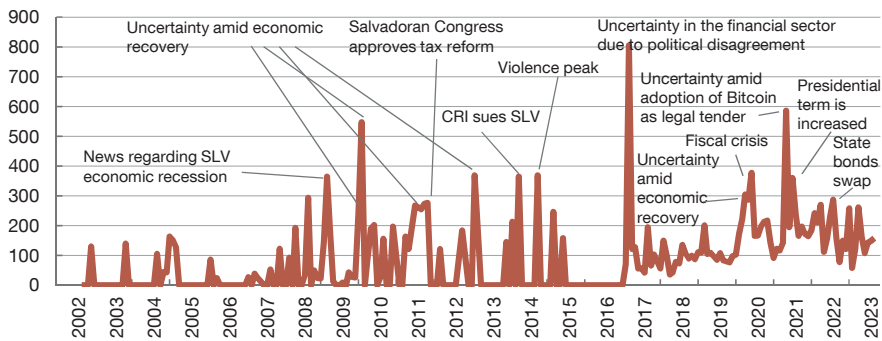
## B. Narrative of the EPU indices
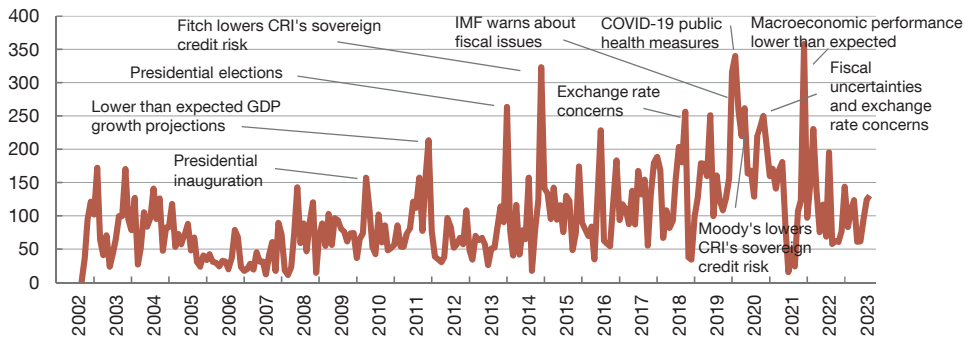
**SOURCE:** Factiva.
NOTE: The chart shows the EPU index for Costa Rica against the narrative of events associated with increases in policy uncertainty in the country. The EPU index spikes around the dates where most news was focused on economic performance, especially in periods when fiscal topics were discussed. The index also reacts to news regarding social concerns about crime and political uncertainty.
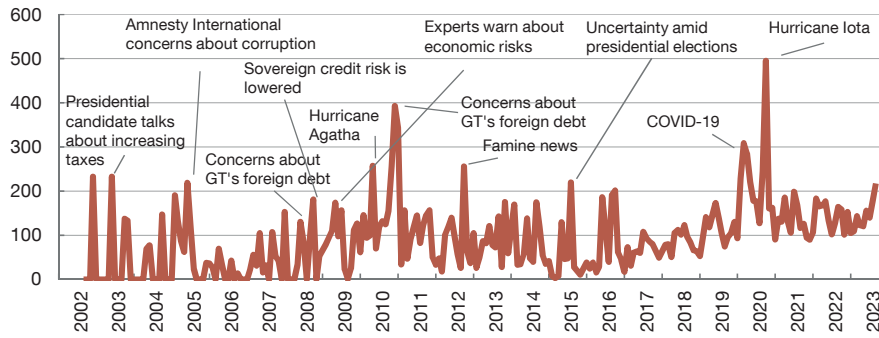
**SOURCE:** Factiva.
NOTE: The chart shows the EPU index for El Salvador against the narrative of events associated with increases in policy uncertainty in the country. The EPU index spikes around the dates where most news was focused on economic performance, especially in periods when fiscal topics were discussed. The index also reacts to news regarding social concerns about crime and political uncertainty.
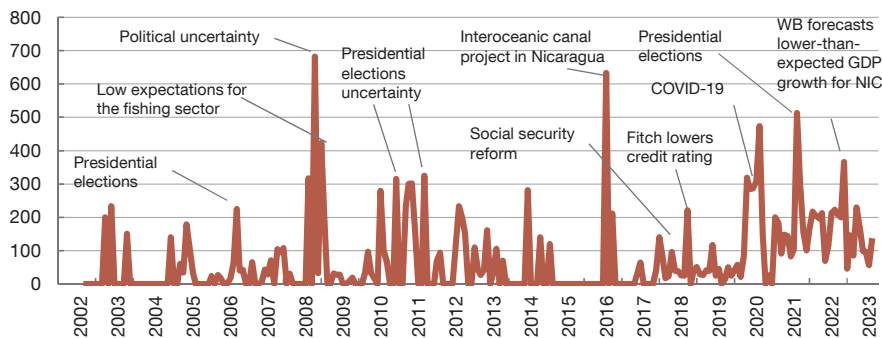
**SOURCE:** Factiva.
NOTE: The chart shows the EPU index for Guatemala against the narrative of events associated with increases in policy uncertainty in the country. The EPU index increases in periods with presidential elections and tax reforms. Concerns about corruption and natural disasters are another driver of uncertainty.
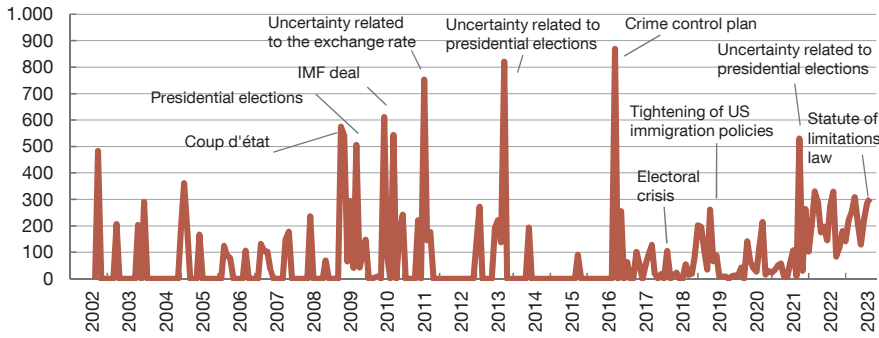
Chart B.4
**EPU index for Nicaragua**



**SOURCE:** Factiva.
NOTE: The chart shows the EPU index for Nicaragua against the narrative of events associated with increases in policy uncertainty in the country.
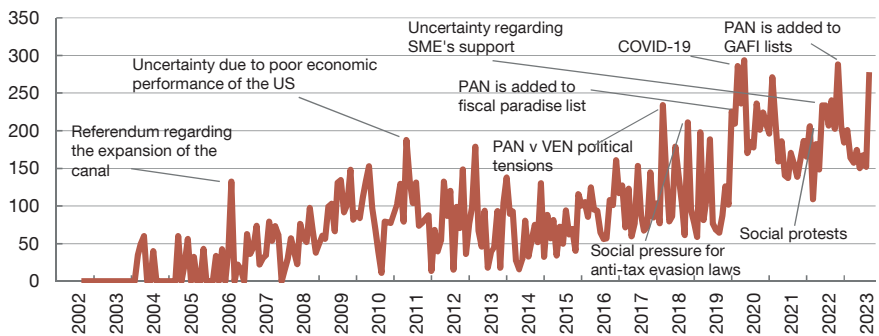
**EPU index for Honduras**



**SOURCE:** Factiva.

NOTE: The chart shows the EPU index for Honduras against the narrative of events associated with increases in policy uncertainty in the country. Political concerns are one of the major drivers of uncertainty in Honduras. The EPU index correctly identifies the uncertainty associated with the coup d'état of 2009 and with presidential elections in subsequent periods.
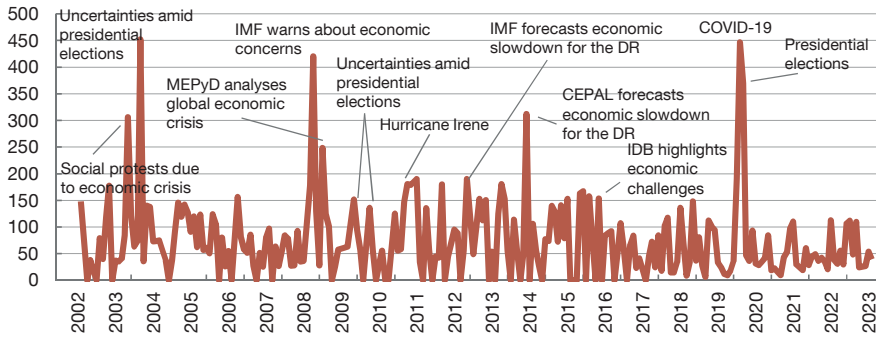
Chart B.6

**EPU index for Panama**



**SOURCE:** Factiva.

NOTE: The chart shows the EPU index for Panama against the narrative of events associated with increases in policy uncertainty in the country. Panama's EPU index spikes mostly when there are concerns about social events, and more specifically, corruption. *VEN: Venezuela; GAFI: Groupe d'action financière.

**SOURCE:** Factiva.
NOTE: The chart shows the EPU index for the Dominican Republic against the narrative of events associated with increases in policy uncertainty in the country. Most peaks are related to the DR's economic performance and international organization outlooks. The EPU index also reacts to major natural disasters and the last presidential election, held during the COVID-19 pandemic. *MEPyD: Ministerio de Economía, Planificación y Desarrollo (Ministry of Economy, Planning and Development); CEPAL: Economic Commission for Latin America and the Caribbean; IDB: Inter American Development Bank.

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