Policy Uncertainty at the State Level
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Abstract: Using digital archives of 3,500 U.S. newspapers, we construct state-level indexes that capture state + local sources of policy uncertainty \((EPU-S)\) and national + international sources \((EPU-N)\). \(EPU-S\) rises around gubernatorial elections and own-state episodes like the Kansas tax experiment. \(EPU-N\) responds to presidential elections and national policy developments. VAR models fit to pre-COVID data imply that upward shocks to own-state EPU foreshadow weaker economic performance in the state, as do upward EPU shocks in contiguous states. The pandemic drove huge increases in policy uncertainty and unemployment, more so in states with stricter government-mandated lockdowns.

Much research on policy uncertainty and its effects considers national measures of uncertainty. See, for example, Baker et al. (2016), Pástor and Veronesi (2017) and Anayi et al. (2022). When it comes to the uncertainty stemming from political actions and actors, however, there is tremendous variation at the sub-national level. We show that policy uncertainty at the level of individual U.S. states displays distinctive patterns and has important effects on own-state economic performance and that of nearby states.

Measuring State-Level Economic Policy Uncertainty

To measure economic policy uncertainty at the state level, we tap the digital archives of 3,500 newspapers. We flag and classify articles to construct monthly state-level indexes for state and local sources of economic policy uncertainty \((EPU-S)\) and for national and international sources \((EPU-N)\). We also construct composite state-level indexes that capture both \((EPU-C)\).

Specifically, we identify articles that contain at least one of ‘economic’ or ‘economy’ \((E)\); and at least one of ‘uncertain’, ‘uncertainties’, or ‘uncertainty’ \((U)\); and at least one term in a policy set \((P)\) that differs between \(EPU-N\) and \(EPU-S\) to reflect their different objectives. For instance, the policy term set for \(EPU-N\) mainly contains terms for national policy-making institutions and regulatory agencies but also includes ‘monetary policy’ and terms that refer to the election of federal officials. For \(EPU-S\), we tailor the policy sets for each state to cover relevant state and local officials, policy-making bodies, and regulatory agencies.

To construct our indexes, we compute the ratios of \(EPU-N\), \(EPU-S\) and \(EPU-C\) article counts to the total number of articles in each state-month. We scale these raw ratios by the average
value of the raw \( EPU-N \) ratio from 2006 to 2019. This scaling preserves information about the relative magnitudes of \( EPU-N \), \( EPU-S \) and \( EPU-C \) within each state.

### The Sources of State-Level Policy Uncertainty

Before the pandemic struck, half of all newspaper articles that feed into our composite \( EPU-C \) index discuss state and local policy matters. That share rose to 62% in the period from March 2020 (when the pandemic struck in force) to June 2021 (when our sample ends). Thus, our measurement efforts confirm that state and local policy matters are important sources of economic policy uncertainty, and that they became more important after the pandemic.

Figure 1 displays monthly series for the cross-state average values of \( EPU-N \) and \( EPU-S \). Gulf Wars I and II, close presidential elections, financial crises, major political conflicts over fiscal policy, the June 2016 Brexit referendum, trade policy tensions during the Trump presidency, and Trump’s impeachment in December 2019 all leave visible marks on these series, especially the average \( EPU-N \) series. The inset shows that the pandemic pushed (average) \( EPU-N \) to 2.7 times its pre-COVID peak and pushed \( EPU-S \) to more than four times its previous peak.

While these two series are correlated, the cross-state average \( EPU-N \) measure fluctuates with greater amplitude than average \( EPU-S \), because many state-level sources of EPU average out in the cross section. The average pairwise time-series correlation between states is only 0.23 for \( EPU-S \) as compared to 0.39 for \( EPU-N \). Looking within states over time in the pre-pandemic period, the correlation between \( EPU-N \) and \( EPU-S \) ranges from 0.17 to 0.76, with a mean of 0.4.

Using country-level data, Baker et al. (2020) find that national EPU indices exhibit a clear tendency to rise in the months leading up to national elections. We find powerful election effects on policy uncertainty in our state-level data and major differences between the effects of national and state-level elections. Specifically, U.S. presidential and congressional elections raise \( EPU-N \), while gubernatorial elections have no such impact. In contrast, own-state gubernatorial elections raise \( EPU-S \). Close elections (winning vote margin under 4 percent) elevate policy uncertainty much more than less competitive elections. Using statistical models that include controls for common trends, seasonal effects, and state-level economic conditions, a close presidential election contest raises \( EPU-N \) by 60 percent and a close gubernatorial contest raises \( EPU-S \) by 35 percent.

\( EPU-S \) also rises sharply in reaction to shocks that interact with poor policy design (e.g., California’s electricity crisis of 2000-01), political turmoil in the wake of economic mismanagement (California’s gubernatorial recall in 2003), major tax reforms that aim to promote economic development (the Kansas tax experiment of 2012), natural disasters that
raise questions about how policymakers will respond (Louisiana after Hurricane Katrina in 2005), and state-specific exposures to major national developments and policy actions (Michigan during the Great Recession). Thus, there are myriad drivers of fluctuations in EPU-S.

**Effects of State-Level Economic Policy Uncertainty**

Our measurement of state-specific policy uncertainty offers a new lens with which to view national, state, and local policies and events. We use our new indexes to investigate the relationship of state-level economic performance to policy uncertainty.

In one set of investigations, we fit vector autoregressions (VARs) to monthly, state-level data on ln(EPU-C) and economic activity. To identify shocks, we adopt a Cholesky decomposition with ln(EPU-C) first in the ordering. In a balanced panel of 44 states from June 2004 to December 2019, we find that own-state policy uncertainty shocks foreshadow lower employment and higher unemployment in the state. Figure 2 displays the estimated ln(employment) and unemployment rate responses to unit standard deviation ln(EPU-C) shocks. The dynamic responses are hump-shaped with peak responses after about one year. We filter the data as recommended by Hamilton (2017) in preparing Figure 2, but results are similar when using HP-filtered data or unfiltered data.

The shock responses are modest in size but estimated with good precision, owing to the richness of our state-level data. When we restrict the sample to larger states (with denser newspaper coverage) to mitigate measurement error, we find larger estimated effects of policy uncertainty shocks. Expanded VAR specifications that allow for spatial spillover effects yield clear evidence that state-level EPU-C shocks also depress economic activity in neighboring states.

While state-level policy uncertainty shocks of a typical size (i.e., one standard deviation) have modest effects on economic activity, we show by example that the effects are occasionally large. As an illustration, we focus on key aspects of California’s experience. We first re-fit our VAR model to data for California only, which lets us extend the sample back to 1985 (1987 after filtering). Estimating and identifying the model in the same way as before, we recover the realized sequence of structural shocks and use it to construct an historical decomposition of monthly movements in California’s unemployment rate.

Figure 3 displays the resulting decomposition. The electricity crisis in 2000-2001 produced one of two episodes in which large upward policy uncertainty shocks elevated California’s unemployment rate by 50-60 basis points or more for an extended period. The maximal swing in California’s unemployment rate due to policy uncertainty shocks is about two percentage
points. In short, California’s experience illustrates that upward policy uncertainty shocks can, and sometimes do, materially affect and detract from state-level economic performance.

**Policy Uncertainty During the COVID-19 Pandemic**

The COVID-19 pandemic led to a tremendous rise in policy uncertainty, as shown in Figure 1. The sources of policy uncertainty also shifted abruptly in the wake of the pandemic. Specifically, the ratio of $EPU-S$ to $EPU-N$ rose in nearly all states, and sharply so in most states. The cross-state average ratio of $EPU-S$ to $EPU-N$ rose from 0.65 before the pandemic to 1.1 afterwards. This dramatic shift reflects the predominant role of state and local authorities in restricting commercial and social activities during the pandemic.

We delve further into this shift by examining how state-level EPU changes from 2019 to 2020 and 2021 relate to state and local government restrictions on commercial and social activities. Policy uncertainty rose more sharply in states with stricter lockdowns – as measured by the incidence and duration of shelter-in-place orders, business closure orders, restaurant closure orders, and school closure orders. This lockdown stringency effect is large relative to between-state variation in the pandemic-era jumps in policy uncertainty. Surprisingly, state-level policy uncertainty exhibits no discernible response to pandemic severity, as measured by COVID deaths per capita in the state.

States that imposed stricter and longer lockdowns during the pandemic had bigger jumps in unemployment, conditional on pandemic severity and policy uncertainty. Bigger increases in state-level policy uncertainty during the pandemic also came with bigger increases in unemployment that persisted after the lockdowns ended. There are sound reasons for caution in drawing causal inferences from these patterns, but they highlight the possibility that lockdowns had long-lasting effects on state-level economic activity. They also suggest that one channel of transmission involved persistently elevated levels of policy uncertainty.

We hope other researchers will find other uses for our state-level policy uncertainty measures, which are freely available and regularly updated at https://policyuncertainty.com/state_epu.html.
References


Figure 1. Average Values of EPU-S and EPU-N by Month

Notes: We cover all states from January 2006 onward, 38 states from 1996 onward, and 12 states throughout the period from January 1985 to June 2021. We weight each state equally in computing averages.
Figure 2. Unemployment Rate and ln(Employment) Responses to Unit Standard Deviation ln(EPU-C) Shocks

Notes: Each panel shows estimated dynamic responses to a unit standard ln(EPU-C) shock (with 95% confidence bands), the peak response, and the standard deviation of the identified shock. To obtain these results, we filter the data as recommended by Hamilton (2017), fit a two-equation panel VAR model by least squares to monthly state-level data for 44 states, and place ln(EPU-C) first in a Cholesky ordering. The VAR system has six lags of each variable and state-specific intercepts. The estimation sample runs from June 2004 to December 2019 after filtering.
Figure 3. Historical Decomposition of California's Unemployment Rate Movements from June 1988 to December 2019

Notes: This figure shows the historical decomposition of unemployment rate movements implied by a structural VAR system with six lags fit to Hamilton-filtered monthly data on the unemployment rate and ln(EPU-C) for California from June 1988 to December 2019. We recover structural shocks by placing ln(EPU-C) last in a recursive causal ordering of the reduced-form VAR innovations. Reversing the causal ordering yields a very similar decomposition.