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Economic policy uncertainty in the US: Does it matter for the Euro area?

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HIGHLIGHTS

- We quantify the possible spillovers going from the US to the Euro area economics.
- We focus on shocks to the US economic policy uncertainty.
- We document a negative and significant reaction of Euro area price and quantity indicators.
- The contribution of US uncertainty shock is estimated to be larger than that of a Euro-area specific uncertainty shock.

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ABSTRACT

We investigate the effects of a US economic policy uncertainty shock on some Euro area macroeconomic aggregates via Structural VARs. We model the indicators of economic policy uncertainty recently developed by Baker et al. (2013) jointly with the aggregate price indexes and alternative indicators of the business cycle for the two above indicated economic areas. According to our SVARs, a one standard deviation shock to US economic policy uncertainty leads to a statistically significant fall in the European industrial production and prices of −0.12% and −0.06%, respectively. The contribution of the US uncertainty shock on the European aggregates is shown to be quantitatively larger than the one exerted by an Euro area-specific uncertainty shock.

1. Introduction

The attention on the macroeconomic effects of uncertainty has been recently reignited by Bloom's (2009) highly influential paper. A number of VAR investigations have been proposed to quantify the impact of uncertainty shocks at a macroeconomic level (see e.g., Alexopoulos and Cohen (2009), Bloom (2009), Baker et al. (2013), Caggiano et al. (2013), Leduc and Liu (2013) and Nodari (2013)). Such investigations have typically followed a within-the-US-country approach, i.e., they have focused on the reaction of a set of US variables to a shock to the level of uncertainty affecting the US economy itself. While being a somewhat natural approach, shocks hitting a leading economy such as the United States may very well spillover onto other countries. Investigations documenting the existence of spillovers include Kim (2001), who quantified the role of US macroeconomic shocks in triggering business cycles at an international level, and Favero and Giavazzi (2008) and Ehrmann and Fratzscher (2009), who look at spillover effects regarding financial markets. As for the literature dealing with uncertainty shocks, Mumtaz and Theodoridis (2012) estimate an open-economy VAR focusing on the potential impact of the volatility of shocks to US real activity on UK. They find that spillovers across these two areas may very well be important.

This paper asks the following question: "*Are there spillovers from the US economy to the Euro area due to economic policy uncertainty shocks?*" To answer this question, we model a VAR including both US and Euro area aggregates. Then, we identify a US uncertainty shock via the imposition of short-run restrictions and focus on the responses of Euro area prices and quantities. The uncertainty shock is identified by appealing to the "economic policy uncertainty indicator" recently developed by Baker et al. (2013). *The answer* provided by our empirical investigation *turns out to be positive:* a one-standard deviation shock to US economic policy uncertainty leads in the short-run to a statistically significant fall in the

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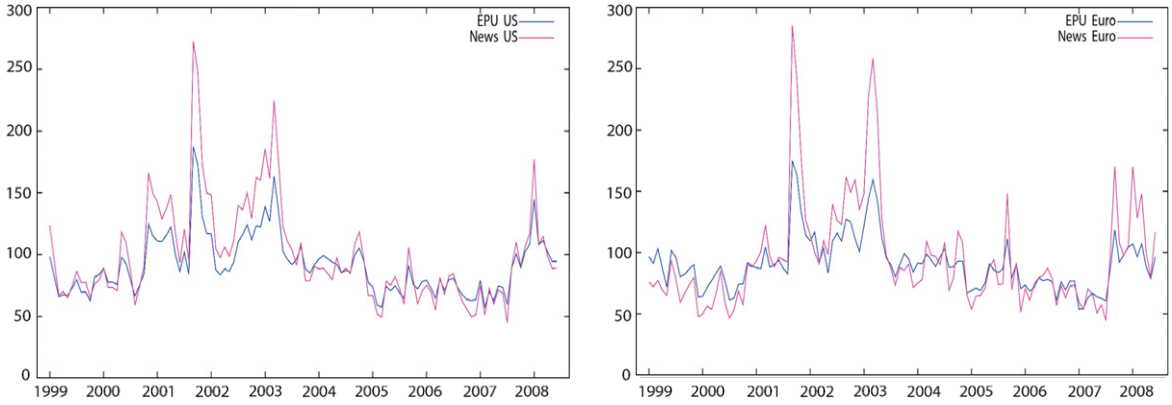

Fig. 1. Plots of time series of EPU and news policy uncertainty indexes for US and Euro (1999M1–2008M6).

European industrial production and prices of −0.12% and −0.06%, respectively.

Our paper is structured as follows. Section 2 focuses on the data and the identification scheme employed in our VAR-approach. Section 3 presents our results. Section 4 concludes.

2. Data definition and VAR specification

We analyze the transmission of structural shock from the US to Euro area within a two-country Structural Vector Autoregressive model (SVAR). A common representation of the SVAR is;

$$B_0 y_t = B(L) y_{t-p} + \varepsilon_t \tag{1}$$

where $B(L)$ is an autoregressive lag-polynomia, and ε_t is the vector of structural innovations. The vector $y_t = [\text{CPI}^{\text{US}}\ \text{IPI}^{\text{US}}\ i^{\text{US}}\ \text{News}^{\text{US}}\ \text{HCPI}^{\text{Euro}}\ \text{IPI}^{\text{Euro}}\ i^{\text{Euro}}\ \text{News}^{\text{Euro}}]'$ includes all the endogenous variables in our model and relies on two blocks: the first one refers to "foreign" variables (US), whereas the second one includes "domestic" variables (Euro area). Each regional block includes the consumer price index (CPI for the US and HCPI for the Euro area), as a measure of prices; the industrial production index (IPI), as a proxy for the business cycle; the short-run interest rate (indicated with "i" in the vector above), which is the Federal Funds Rate for the US and the three-month interest rate for the Euro area, as a proxy for the monetary policy instrument. To account for economic policy uncertainty in the US and the Euro area, we employ two country-specific empirical proxies carefully constructed by Baker et al. (2013). The policy-related economic uncertainty for the US (EPU^{US}) relies on three components: a news-based component quantifying newspaper coverage on economic policy uncertainty (News^{US}); a measure of the federal tax code provisions; and a measure of disagreement among forecasters. The Euro area uncertainty index (EPU^{Euro}) relies on two components: a news-based component ($\text{News}^{\text{Euro}}$), and a measure of disagreement among forecasters. Since the overall economic policy uncertainty indexes rely on different components, we focus on uncertainty indexes based on news coverage. The correlation between the EPU indicator and its news-based component is 0.97 and 0.93 for the US and Euro area, respectively. Hence, we include in vector y_t the news-based components, News^{US} and $\text{News}^{\text{Euro}}$, as proxies for the economic policy uncertainty.[1] Fig. 1 plots the monthly time series of the overall uncertainty indexes and news components, both for the US and the Euro area.

We need to recover the structural shocks ε_t from $\varepsilon_t = B_0 u_t$, where B_0 contains the contemporaneous relationships between the reduced-form residuals u_t and the structural shocks ε_t. To identify B_0, we employ a standard Cholesky decomposition imposing a lower triangular matrix. Since we are interested in the effects of an external policy uncertainty shock (US) on the domestic macroeconomic variables (Euro area), we impose short-run restriction following a country-based exogenous approach. Because we are using a Cholesky decomposition, the ordering of the variables in our vector y_t is important. Following Favero and Giavazzi (2008), we assume that shocks hitting the Euro area exert no contemporaneous effects on the US variables. Consequently, the US block is ordered before the Euro area block in our vector. Second, within each country-block, we order uncertainty last. We do so to "purge" the uncertainty indicator in our VAR from the contemporaneous movements of our macroeconomic indicators (prices, industrial production), therefore sharpening the identification of uncertainty shocks.

Our data are monthly and span the period 1999M1–2008M6. The beginning of the period is motivated by the creation of the Euro area, whereas the end is chosen to avoid possible non-linearities due to the intensification of the financial crisis. All variables are in log-levels, except for the interest rate and the uncertainty indexes, which are in levels.[2] We select the optimal number of lags in the SVAR model combining an initial lag selection based on information criteria with an LMF test for no serial correlation in the error terms.[3] Our SVAR(3) includes equation-specific constants and linear trends. The data have been retrieved from the Federal Reserve Bank of St. Louis database (US industrial production, price level, and federal funds rate), the European Central Banks Statistical Warehouse (industrial production, price level, and the three-month interest rate), and the "Economic Policy Uncertainty" website (http://www.policyuncertainty.com/).

3. Results

Fig. 2 depicts the impulse response functions to a one-standard deviation shock to the US uncertainty index. The responses of US industrial production and consumer price index are statistically significant and suggest a decline in production and a deflationary phase after an increase in uncertainty. Both the industrial production and prices hit their lowest values after three months, reaching a minimum around −0.13% and −0.08%. The Federal Reserve reacts

[1] Our results are robust to the use of the overall indexes instead of their news components.

[2] Sims et al. (1990) show that VARs in log-levels provide consistent estimates of the IRFs even in the presence of co-integrating vectors. We do not attempt to model co-integrating vectors given the small size of our sample.

[3] SIC and BIC information criteria suggest a VAR(1), whereas AIC a VAR(2). However, the results are robust to different lag-length choices.