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ECONOMIC POLICY UNCERTAINTY AND ITS FOREIGN TRADE IMPACT

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Economic policy uncertainty (EPU) plays a critical role in driving macro-economic variables and this has been one of the most widely discussed issues among academics and policy makers amidst the ever-growing literature in this area. One particular aspect of EPU that has garnered attention is the prevalence of persistence in the EPU series and its resulting impact on EPU related studies. As per (Plakandaras, Gupta, & Wohar, 2019), a more persistent uncertainty series would take longer to revert to its long run equilibrium, and hence the more prolonged would be a negative impact on the economy. They investigated 72 popular uncertainty indices and found persistence in all these indices. They state that the impact of uncertainty is likely to be non-constant over time and should be best studied using time-varying frameworks. We use the Bayesian Vector Autoregression with stochastic volatility and time varying parameters (BVARSV-TVP) to factor in the time varying characteristic of EPU impact. (Gil-Alana & Payne, 2019) using fractional integration techniques, measured the degree of persistence for the US EPU index and concluded that the shocks are persistent but mean reverting. As per (Joel, Abakah, Caporale, & Gil-alana, 2020), EPU is in most cases a non-stationary, mean reverting series characterised by a long memory and is inherently persistent. Therefore, in this paper the Indian EPU series is made stationary to cancel out the persistence and observe the impact on the exports. With reduced EPU persistence, the export (EXP) performance of the Indian pharma industry (bulk drugs and fine chemicals) needs to improve which is the hypothesis that is tested in this paper.

As cited in literature below, policy uncertainty especially EPU tends to negatively impact economic growth and exports. Therefore, along with exports, we have Indian GDP growth (GDP) as an endogenous variable in the BVARSV-TVP model. It would also be interesting to observe the impact on GDP growth from an EPU series with reduced/zero persistence.

(K & A.D, 2007) consider a group of both developed and less developed countries and apply a common methodology in analysing export growth. They find that exchange rate uncertainty negatively impacts export growth for six of the nine less developed countries. As opposed to this, the results for the nine developed countries are mixed with the majority showing no significant impact. (Handley & Limão, 2018) consider Portuguese accession to European Commission and conclude that elimination of trade policy uncertainty led to export growth using a dynamic heterogenous firm's model. (Armelius, Belfrage, & Stenbacka, 2014) find that US EPU is able to explain the growth patterns of global trade for the period of 1994Q1–2013Q4. Using monthly data for 31 countries during 1999–2012. (Han, Qi, & Yin, 2016) show that US EPU affects exports of countries negatively, and that China's exports also respond negatively to EPU shocks from Japan and the United Kingdom. (Constantinescu, Mattoo, & Ruta, 2019) suggest strong adverse effects of global EPU on trade growth, drawing on annual data between 1995 and 2015 for 16 countries. As per (Kirchner, 2019), using a p-order vector autoregression, studied the impact of policy uncertainty on Australia, US and the global economy. It was found that Australia's economy, foreign trade and investment are more resilient to economic policy uncertainty shocks than global and US output and trade. He also stated that reducing policy uncertainty can benefit cross-border trade and investment. (Greenland, Ion, & Lopresti, 2019) by adopting the real options framework, studied how policy uncertainty in 18 large economies affects exports to these economies and concluded that increase in policy uncertainty decreases the aggregate trade flows. This is as a result of large irreversible entry costs while exporting to countries with higher policy uncertainty. (Adedoyin, Afolabi, Yalçiner, & Bekun, 2020) carried out a study in Malaysia on export led growth using the autoregressive distributed lag model. They found that EPU exerts a negative impact on growth and thereby affects exports adversely.

The time period considered is from April 2004 to August 2018 and the data frequency is monthly with all the data series log transformed. The BVARSV-TVP model would be run twice (along with a simpler benchmark VAR model) – first with persistent log transformed EPU index series (EPU) which is non-stationary along with the variables GDP and EXP and the second run with a log transformed stationary EPU index series (EPU1) along with the variables GDP and EXP – all the variables entering the model endogenously. Also, the residuals of all variables would be plotted to observe how efficiently the variables are fitted by the model.

The impulse response function (IRF) analysis was carried out and the following figures 1(a), 1(b), 2(a) and 2(b) show the responses of EXP to the respective shocks to the impulse variables – EPU and GDP under the two runs of the BVARSV-TVP model. The median estimate of the response is represented by the solidline. The 5th and 95th percentiles are shown by the grey shaded regions. The response from the benchmark VAR model is the dashed line.

Results from the first BVARSV-TVP run (with a persistent EPU).

Figure 1(a) shows a marginal positive response from EXP to EPU shocks (persistent EPU). Even the benchmark VAR model shows a very shallow response from EXP. Figure 1(b) shows a mixed response from the BVARSV-TVP and the

simpler VAR model. The BVARSV-TVP model shows EXP responding negatively to the GDP shocks whereas EXP responds positively under the VAR model. However, both the responses are marginal as seen from the figure. Therefore, we can infer that EXP is not substantially impacted by EPU persistence nor by the GDP.

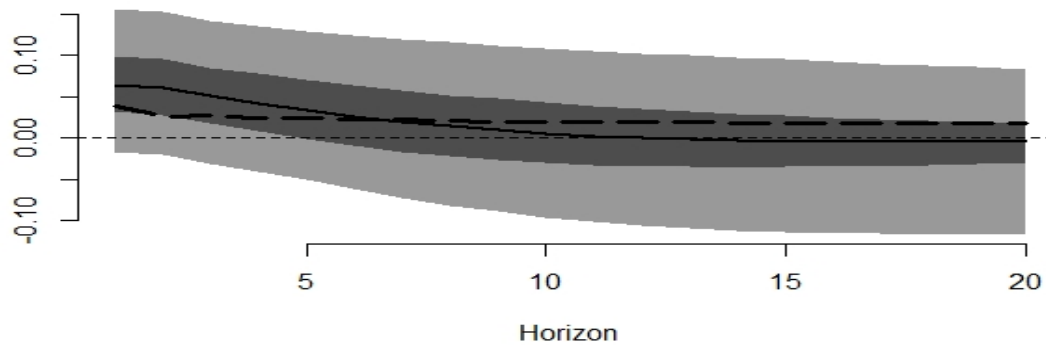


Figure 1(a). Response from EXP to EPU shocks

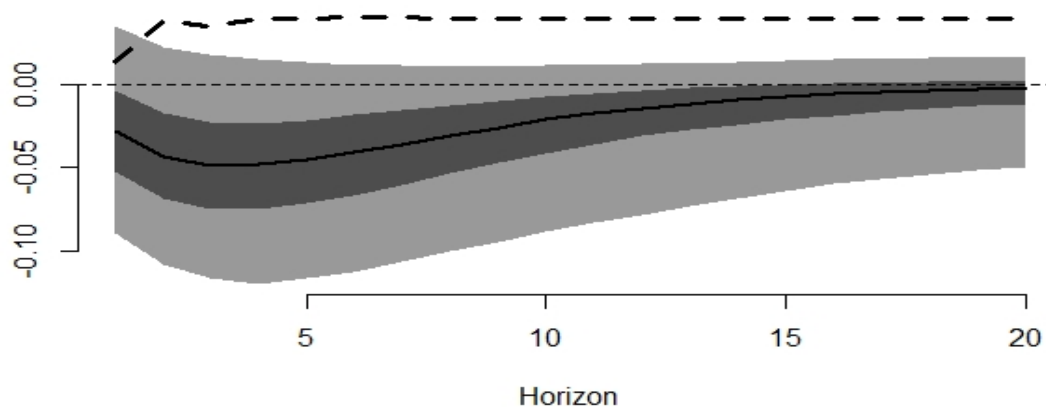


Figure 1(b). Response from EXP to GDP shocks

Source: Author's analysis in R studio.

Results from the second BVARSV-TVP run (with a non-persistent EPU)

Even when the EPU is non-persistent (EPU1), we do not find any change in the way EXP responds. This indicates that EXP is marginally, if at all affected by both EPU1 and GDP.

If we observe the figures 2(c) and 2(d) which plot the EPU and EXP raw non-stationary data with monthly frequency, we clearly find that EXP has been steadily rising over the years irrespective of the ups and downs in the EPU series. The pharma exports have been buoyant possibly because a large component of these is composed of generic drugs and India is a low-cost producer of these drugs which makes them relatively competitive in the international market.

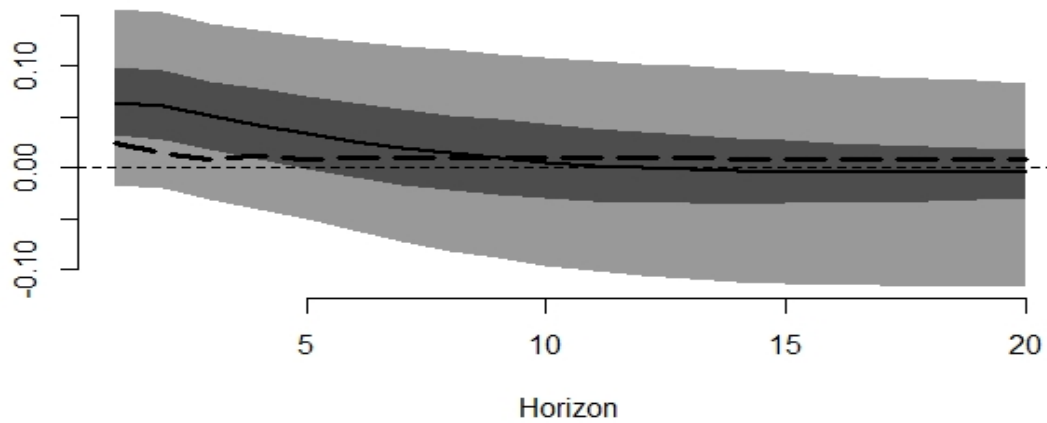


Figure 2(a). Response from EXP to EPU1 shocks

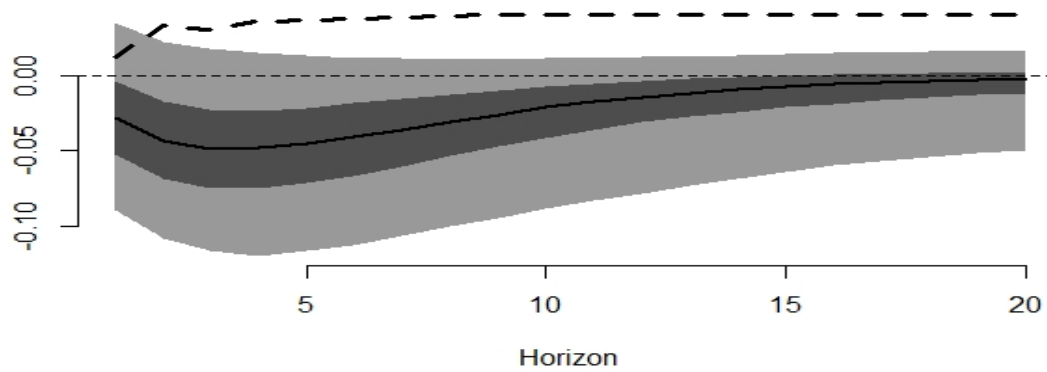


Figure 2(b). Response from EXP to GDP shocks

Source: Author's analysis in R studio.

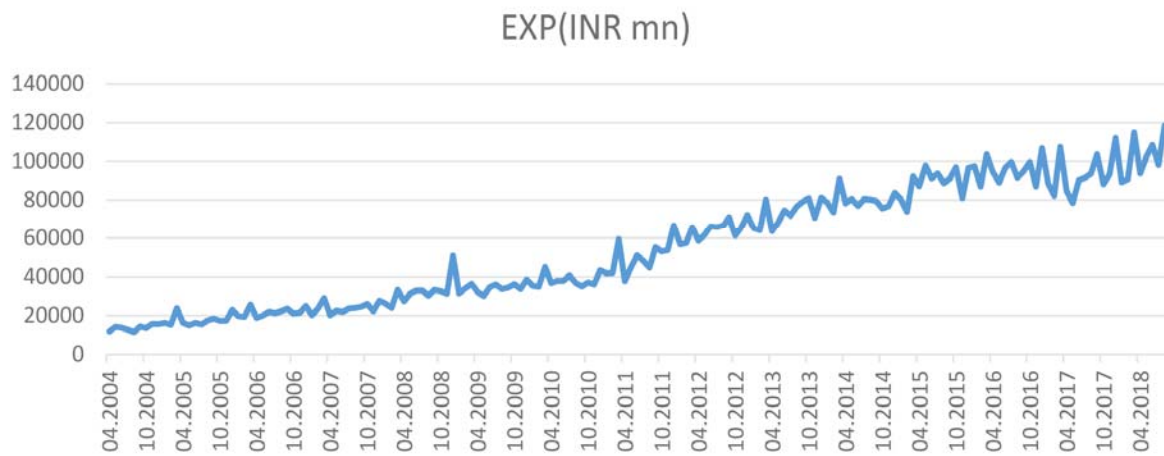


Figure 2(c). Indian Pharmaceutical exports (EXP) in ₹ million.

Source: <https://commerce-app.gov.in/meidb/brcq.asp?ie=e>

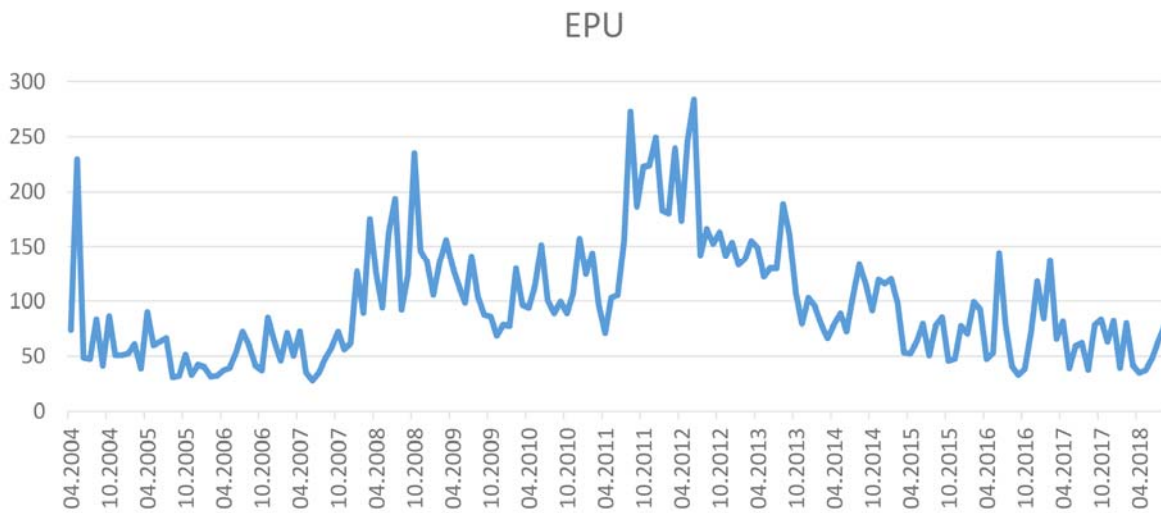


Figure 2(d). Indian EPU Index

Source: <https://www.policyuncertainty.com/>

The article probed into the impact of EPU on EXP in two cases – when EPU is persistent and when it is non-persistent. The BVARSV-TVP model was utilised for the analysis as prescribed by (Primiceri, 2005). The results are quite opposite of the literature cited where foreign trade involving exports have been found to be impacted by EPU. The IRF analysis drawn from the BVARSV-TVP model runs show no substantial impact of EPU – both persistent and non-persistent – on the EXP. Also, GDP seems to only marginally impact EXP from the IRF analysis. As seen from Figure 2(c), the pharma exports have been buoyant possibly because a large component of these is composed of generic drugs and India is a low-cost producer of these drugs which makes them relatively competitive in the international market. Another reason could also be the gradually depreciating Indian currency over the years which have made the Indian exports price competitive. Some relevant inputs could be drawn from the results for policy making. Policy involving EXP would need to focus more on the low cost advantage and the depreciated currency and less on EPU and the GDP growth patterns (that seem to have a shallow impact on EXP).

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