



# Bayesian Panel Vector AutoRegressive (VAR) Models

**Komla Mawulom AGUDZE \***

Ph.D Researcher, Student at Ca' Foscari University of Venice, Italy

email: mawulome7@yahoo.fr

## **Abstract**

Vector autoRegressive (VAR) and Panel Vector autoRegressive are extensively used to model economic time series. However the large number of parameters is the main difficulty with VAR models. Without prior information, it is hard to obtain precise estimates of so many coefficients and, thus, features such as forecasts and impulse responses will tend to be imprecisely estimated (i.e. posterior or predictive standard deviations can be large). For this reason, it can be desirable to use Bayesian approach with prior information to shrink the large number of parameters. In this work, a forecast, an impulse response function and a transmission of shock are analyzed through a Bayesian multivariate regression.

In order to gain more knowledge of the effect of shock from one country to another country, this methodology was applied to the Industrial output Production Index and term spread of interest rates of twelve countries. The main interest remains studying the performance of forecast based on non informative prior and informative prior, the effect of adding more lags in the Bayesian Vector autoRegressive (BVAR) model and finally, the sensitivity of the impulse response functions of BVAR modeling and the transmission of shock across countries through a Panel BVAR.

**Key Words:** Objective prior, subjective prior, impulse response functions, out of sample forecast.