Introduction

- Few studies have used FAVAR to explain the response of macroeconomic economic variables to monetary policy instruments in Nigeria.
- Mordi et al (2014) used FAVAR model to analyze the reaction of consumer prices, interest rates, and exchange rate, their results are mixed and “price puzzle” effect is observed.
- Obafemi et al (2014) also examined the transmission channel of monetary policy using FAVAR approach, the price and the liquidity puzzle effect are present at the early stage but disappear later.
- Our study, therefore, appeals to the flexibility of FAVAR by introducing the communality and uniqueness of Factor Analysis to reconcile the mixed results in monetary policy management in Nigeria.

Study Objective

The study capstone and objective is to re-examine and revisit the FAVAR approach in establishing the effectiveness of monetary policy instrument in Nigeria as discussed in Mordi et al (2014).

Methods and Data Description

It is a two-stage estimation.
- The extraction of the unobserved factors using principal component analysis (PCA),
- the identification and elimination of the factors with higher uniqueness errors and,
- the estimation of VAR on the variables with higher communality.

Data Description

- Quarterly data that spans from year 2000 to last quarter of year 2019.
- 121 macroeconomic variables

Results

- The results revealed that about 67 percent of our variables has communality that is more than 40 percent.
- In essence, we re-calibrate our model by eliminating the variables with communality lower than 40 per cent and retaining the variables with larger amount variance shared with other factors.

Variance Decomposition

- The changes in the unobserved factor component of monetary aggregates in PC4 increasingly affects the variation in inflation.
- There is no evidence of impact of MPR on inflation in the first quarter.
- While the variation in inflation resulting from changes in CRR and TBR is low.

Table 1 MPR vs Unobserved Factors

Table 2 TBR vs Unobserved Factors

Table 3 CRR vs Unobserved Factors

Discussion

- Our results indicate a high impact of all the monetary instruments on inflation.
- we find that the factor component of all the macroeconomic data indeed have some information that may affect inflation.
- The factor components of monetary and short-term interest rates as well as real outputs have a nontrivial impact on inflation as the quarter horizon increases.
- There exists some latent information extracted directly from operating and intermediate target that can be useful for price stabilization policy in Nigeria.

Conclusions

- extracting the communality of the macroeconomic variables to improve policy shock identification resolves price and liquidity puzzle effect.
- Our approach is useful for better measurement of Factor Analysis in VAR estimations
- Our results also show that through the operating targets, a contractionary monetary policy, reduces the short-term interest rates, increases credit to the private sector, and increases net domestic credit and industrial outputs.
- This channel is effective in encouraging real investment and real personal disposable income.
- Moreover, we show from our study that food CPI and food mostly drive the inflation.

Future Directions

We did not use any scientific method to determine a threshold for excluding variables with high uniqueness. Therefore, future studies can consider new grounds for policy shock identification that will yield a more robust estimations.

References


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