Cause or Curse? An empirical study of the linkages between Oil Revenues and Nigeria's current Exchange Rate and Inflation crises

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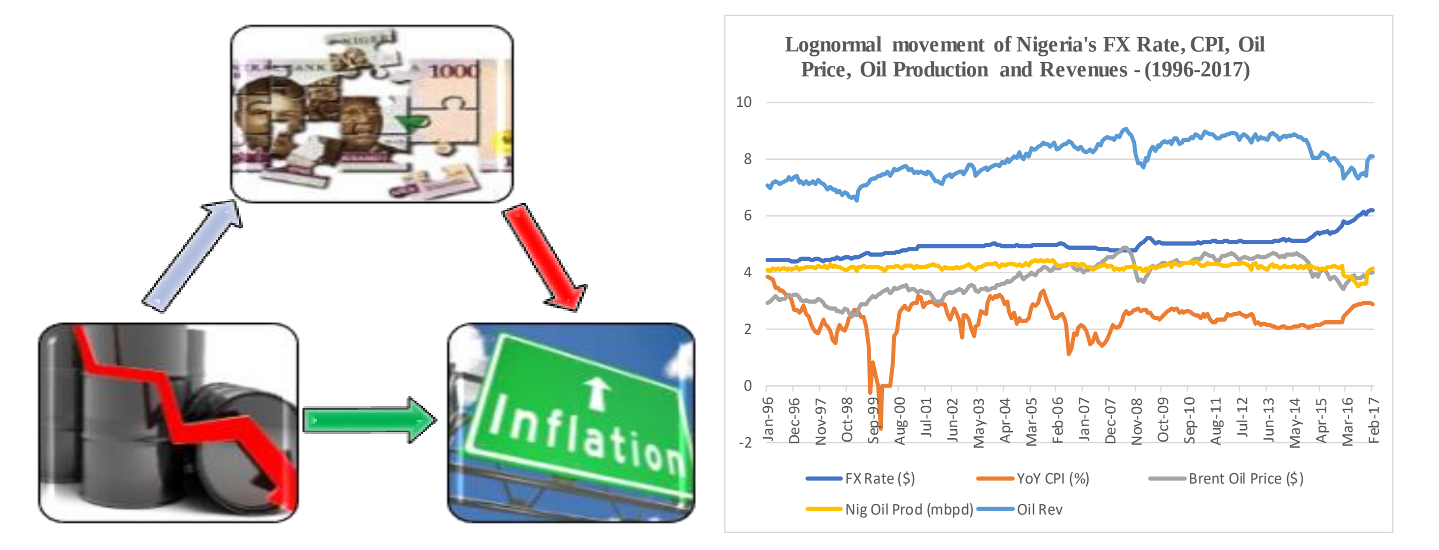
Background

- Oil-producing developing countries (OPDC) heavily depend on **oil export revenues**.
- Their macroeconomic variables - **exchange rate** and **the CPI** may be affected by price and volume **volatility**.
- The 2014 price shock and reported production losses are argued to have **caused** unprecedented currency depreciation and inflation in **Nigeria** (Onigbinde 2016; BBC 2016).
- it is also believed that the crises were complicated by long-term mis-management of oil revenues by successive governments – **curse**.



CAUSE OR CURSE?

Research Questions

- Do oil price and production volume Granger-cause nominal exchange rate?
- Does nominal exchange rate Granger-cause inflation?
- Do oil price and production volume Granger-cause inflation?
- Are other macroeconomic variables important in the determination of the CPI?
- Does long-term cointegration exist among the research variables?
- What is the overall relationship between the research variables? Are these significant?

Methodology

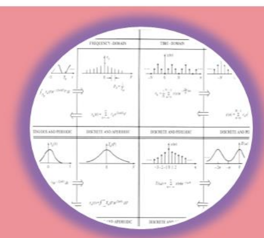
- Relevant data from 1995–2016 sourced from authorities.
- Analysis based on RSE and IVE regression models in equations *(1)* and *(2)* below:

$$CPI = \alpha_0 + \alpha_1 PRICE + \alpha_2 VOL + \alpha_3 EXCHR + \alpha_4 MONEY + \alpha_5 PLR + U_{1t} \quad (1)$$

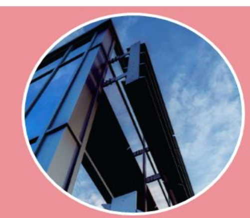
$$EXCHR = \beta_0 + \beta_1 PRICE + \beta_2 VOL + \beta_3 IMPRT + \beta_4 FXRES + U_{2t} \quad (2)$$

- Robust mix of econometric tools to test for various aspects of the models.

Oil Price
Oil Production
Exchange Rates
Consumer Price Index
Money Supply
Interest Rate
Aggregate Import



Stationarity Tests
TEGSECT
WTCR
ECM Regression
GARCH (1,1)
Residual Analysis
[EVIEWS]



Central Bank of Nigeria (CBN)
Nigeria National Petroleum Corporation (NNPC)
OPEC
National Bureau of Statistics (NBS)

Results

- RSE and IVE variables cointegrated at level and first difference respectively.
- **Causality** from oil price and production volume to exchange rate and **pass-through** to **CPI**.
- Causality from exchange rate, money supply, interest rate to CPI.
- Exchange rate **negatively correlated** with oil price and production volume, but only latter is significant.
- **CPI** positively and significantly correlated with **exchange rate.**
- **Statistically insignificant** correlation between **CPI**, **oil price** and **production**.
- Large shocks to both **oil price and production volume** would trigger large and protracted future volatility in the CPI.
- **Import** and **production volume** found to be the **most significant** variables which determine exchange rate.

Conclusion

- A long-term **curse** linkage exists and this vulnerability makes significant shocks to cause currency depreciation, spike inflation and possibly recession when protracted.
- To strengthen their currencies, OPDCs must utilise oil revenues to develop other productive sectors of their economies and ensure good governance.

References

BBC, (2016) 'Nigerian economy slips into recession'. *Business*,. [online] Available at: http://www.bbc.co.uk/news/business-37228741 (Accessed: 12 June 2017).

Onigbinde, O., (2016) 'It's naira or never: Nigeria needs decisive action on its currency'. *The Guardian*, 7 January.

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