# ***A Small Open Economy DSGE Model for AN Oil Exporting Emerging Economy***

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#### Overview

The Nigerian economy is highly dependent on revenues from oil exports and therefore considerably vulnerable to developments in oil price fluctuations. Such dependence includes financing over 80.0 per cent of its budget from oil revenues as well as earning 90.0 per cent of exports from oil and gas exports. This paper analyses the effects of oil-price shocks on the Nigerian economy vis-à-vis the government’s fiscal operations within the context of a small open economy dynamic stochastic general equilibrium (SOE-DSGE) model. The paper extends a standard SOE-DSGE model by incorporating an oil sector, endogenous fiscal policy, and thirdly rule-of-thumb consumers.

The effects of terms of trade shocks in an oil exporting emerging market economy is of special interest particularly where a significant fraction of households are non-Ricardian and are engaged in the informal sector. The introduction of such households generates important gains in aggregate demand and on the amplitude of shocks within the SOE-DSGE modelling framework. The impulse-responses highlight these improvements. In addition, the asymmetric effect of the budget oil-price fiscal rule is captured to show how declining oil price may induce increased government borrowing. The SOE model of an oil exporting economy in this paper follow the prototypical new-Keynesian framework of the open economy (Gali, 2008). Given the significant proportion of consumers that are rule-of-thumb in Nigeria, the research firstly models the impact of such consumers on aggregate demand.

The paper is organised as follows. The second section developments a small open economy DSGE model for an oil exporter incoporating rule of thumb consumers and fiscal policy. Section three show estimation results for the DSGE model, while policy simulations are undertaken in section four. Section five concludes.

#### Methods

Small Open Economy Dynamic Stochastic General Equilibrium Models.

Bayesian estimation approach.

#### Results

The incorporation of rule-of-thumb consumers in the model improves the amplitude of shocks to external sector developments.

Secondly, sticky responses of the bench mark budget oil price to actual decreases in oil prices indicates the asymmetric nature of the behaviour of the budget oil-price rule which may induce govenrment borrwing when oil price shocks are negative.

#### Conclusions

In recent years, developments in new generation New-Keynesian dynamic stochastic general equilibrium (DSGE) models have dramatically improved the way explicit microfoundations of optimising agents are captured to show peculiar macroeconomic characteristics. The ultimate goal is to provide a suitable framework for informed policy analysis and decision making depending on the economy in view.

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