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A SUPPLY-SIDE MODEL OF THE SOUTH AFRICAN ECONOMY: CRITICAL POLICY IMPLICATIONS

by

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Charlotte du Toit

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SUMMARY

A SUPPLY-SIDE MODEL OF SOUTH AFRICA: CRITICAL POLICY IMPLICATIONS

by

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Supply-side theory, policy and modelling have become imperative in economic analysis. This is due to the deficiencies of demand-oriented theory, policy and models to satisfactory address unemployment and inflation. For many decades the Keynesian foundation for conducting economic policy was undisputed, but its failure to explain and solve the problems of stagnation, lagging productivity, double-digit inflation, high interest rates and depreciating currencies, led to the emergence of supply-side economics.

Macroeconomic models were criticised for theoretical inconsistency, forecasting failures and inadequate policy analysis and had to adapt to supply-side modelling in the 1970s. Specific consideration was given to the long-run equilibrium properties and stability of models with respect to output, employment and inflation, which in turn crucially depend on the consistency and structure of supply-side specifications.

This study attempts to develop a neoclassical supply-side model of the South African economy, based on the requirements for theoretical consistency, forecasting and policy analysis. The model specification, estimation and validation, as well as the derivation and estimation of the individual equations are done consistently with leading developments in the field of supply-side policy and macroeconomic modelling.

Although a cost-minimising approach is followed to guarantee consistency between cost, prices and factor demands, a Cobb-Douglas production function is derived on Shephard's duality and included in the model. This enables the estimation of potential output and subsequent derivation of a measure for capacity utilisation. The Cobb-Douglas technology is only included on validation against the more flexible Translog functional form. A further attempt is made to endogenise technical progress in the production relationship. A Jorgenson neoclassical investment function is estimated but extended to incorporate the financial constraint principles which are of particular relevance to the South African economy. Consistency is maintained with the estimation of a neoclassical labour model, wage determination and price-setting within a framework of market imperfections and collective bargaining.

The supply-side model is finally validated and subjected to a series of policy scenario simulations to propose an optimal set of policy measures that will alleviate the labour market inefficiencies and related unemployment problem of the South African economy.

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LIST OF ABBREVIATIONS

ADF	Augmented Dickey-Fuller
BEPA	Bureau of Economic Policy and Analysis
CES	Constant elasticity of substitution
ECM	Error correction model
DBSA	Development Bank of Southern Africa
DGP	Data generating process
DF	Dickey-Fuller
EAP	Economically active population
FIML	Full information maximum likelihood
GDE	Gross domestic expenditure
GDP	Gross domestic product
GNP	Gross national product
HP	Hodrick-Prescott
IID	Independently identically distributed
IFS	International Financial Statistics
IMF	International Monetary Fund
LBS	London Business School
LFP	Labour force participation rate
LN	Layard-Nickell
MAE	Mean absolute error
MAPE	Mean absolute percentage error
MP	Marginal product
MPP	Marginal physical product
MRS	Marginal rate of substitution
NAIRU	Non-accelerating inflation rate of unemployment
NAWRU	Non-accelerating wage rate of unemployment
NICs	Newly industrialised countries
OECD	Organisation for Economic Co-operation and Development
RMSE	Root mean square simulation error
RMSPE	Root mean square percentage error
SA Statistics	South African Statistics
SAMEM	South African macroeconomic model of the University of Pretoria
SARB	South African Reserve Bank
SE	Standard error
SMEs	Small and medium enterprises
Translog	Transcendental logarithmic
UK	United Kingdom
USA	United States of America
VES	Variable elasticity of substitution