

Macroeconomic forecasting for South Africa

PEMPAL STUDY VISIT

Konstantin Makrelov | Chief Director: Economic Modelling and Forecasting |
March 2015



national treasury

Department:
National Treasury
REPUBLIC OF SOUTH AFRICA

What are we going to cover?

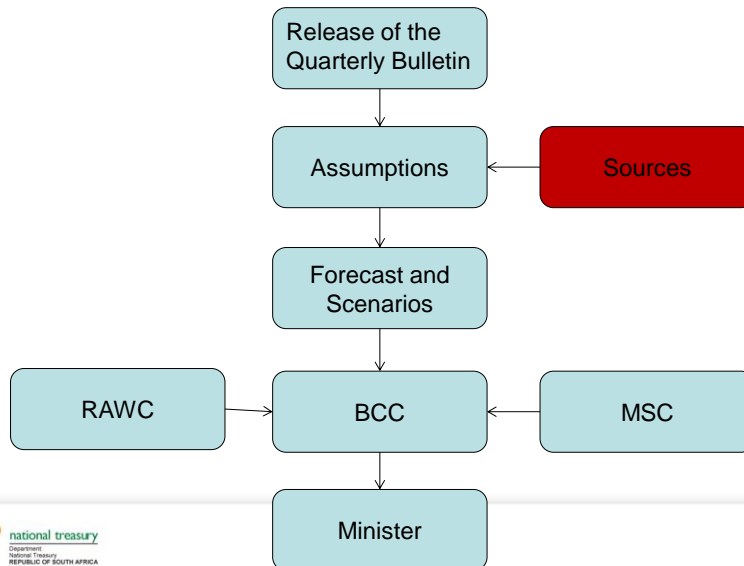
- The forecasting process
 - Assumptions and assumptions process
 - Analysis that feeds into forecast
 - The baseline forecast and scenarios
 - The forecast and its use
 - The Forecast memo
 - Publications of the forecast
- Our economic modelling tools
 - The Quarterly Forecasting Model
 - Other smaller models
- Other work that we do and our tools
 - Economic assessments of policies



national treasury

Department:
National Treasury
REPUBLIC OF SOUTH AFRICA

Summary of the process



Assumptions and assumption process

- Main assumptions
 - Global Demand
 - Commodity prices-Oil, Gold, Platinum, Coal and Iron ore
 - Government expenditure and public investment
 - Exchange rates against the US dollar and the fed rate
 - Inflation in major trading partners
- The assumptions are discussed at the assumption meeting and a consensus view is reached
- The meeting is attended by the whole of the Economic Policy Division. Other divisions are also invited to attend.
- The assumptions are key in generating the final forecast-garbage in, garbage out

Various pieces of research feed into the forecast

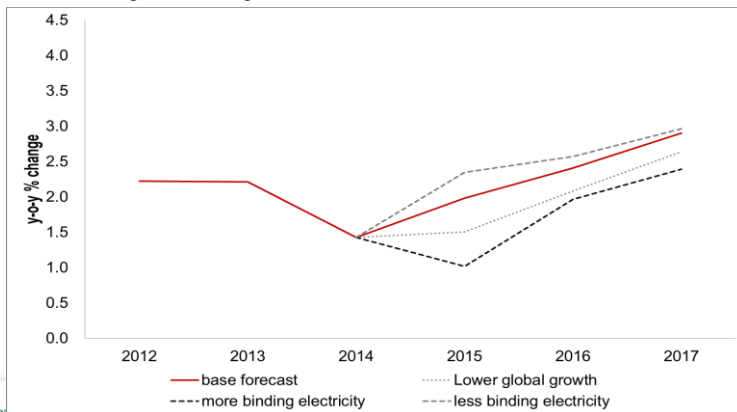
- Estimates of potential growth
- Confidence across consumer groups and their debt levels
- PMI estimates
- Business confidence
- Policy interventions
 - Tax proposals
 - Regulatory interventions,
 - Expenditure plans
 - Etc
- Key developments in sectors driven by policy such as the oceans economy or energy
- Research on fiscal multipliers

The forecast is a key input into the revenue forecast and the fiscal framework

- The forecast is discussed at the forecast meeting which attended by the same people attending the assumptions meeting.
- Key outputs
 - Expenditure components of GDP in real and nominal terms, fiscal and calendar years
 - Rand/dollar exchange rate, the nominal and real effective exchange rates
 - Current account and terms of trade
 - Core Inflation, Headline Inflation, PPI and various other deflators
 - 10 year bond yield
- Feeds into the Revenue Analysis Working Group to generate tax revenue forecast and the Budget Office to generate the fiscal framework
- The forecast is discussed at the Budget Coordination Committee, the Senior Management Meeting, The Macrostanding Committee.

Scenario analysis is used to identify the risks to the forecast

- Further deterioration in electricity availability is likely to reduce growth by 1% in 2015.
- Better than expected availability of electricity can boost growth by 0.4%.
- An unexpected decline global growth together with a resultant fall in commodity prices will result in domestic growth falling below the base case.



The Minister approves the final forecast

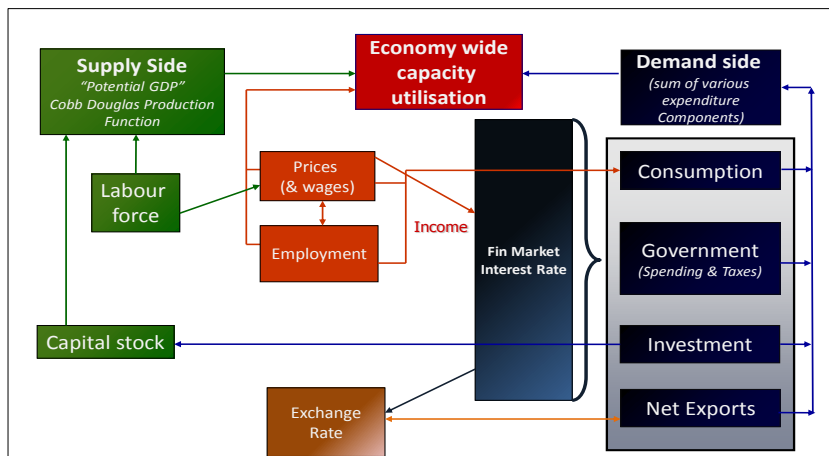
- The forecast is formally presented to the Minister in a memo format
- The memo outlines
 - The current domestic and international environments
 - Presents the forecast numbers and explains them
 - Presents the risk to the forecast and the scenario analysis
- The forecast is updated every quarter but only 2 of the forecasts are published. The September forecast is published in the Medium Term Budget Policy Statement and the January forecast in the Budget Review.
- The entire process of forecast generation and approval takes about 4 weeks.
- The forecast process provides a framework to integrate global and domestic developments and generate a consistent and credible forecast story.

National Treasury uses a large econometric model as its main forecasting tool

- The Quarterly Forecasting Model is a demand-side econometric model that reflects the small, open nature of the South African economy.
- The model consists of 279 variables, of which 139 are determined endogenously (i.e. by the model). 21 of the endogenous variables are determined by behavioural equations.
- Behavioural equations estimate South African specific short-run and long-run economic relationships simultaneously based on the relevant economic theory.
- For example
 - Consumption – based on wages, employment and interest rates
 - Private investment – based on domestic and world growth, commodity prices, capacity utilization and the user cost of capital. Government and public corporation investment are determined exogenously.
 - Exports – based on foreign demand (proxied by GDP in G7 countries), relative export price competitiveness, the real effective exchange rate, and commodity prices.



The model structure



Other tools that assist with the forecast in the short-run

- Inflation model
 - Forecast of individual components
- Sector model
 - Forecasts of various sectors –supply side
- Terms of trade
 - Based on commodity price assumptions, import and export inflation and exchange rate
- Principle components

Other models

- Computable General Equilibrium(CGE) Model based on IFPRI framework-static and dynamic
 - Tax
 - Energy
- Multiplier models
- The Small Structural Model
- Tax forecast model and PIT microsimulation model
- General cross-section, time-series and panel data regression analysis

Some of our work

- Re-estimation of the National Treasury potential growth and output gap
- Assessing the economic impacts of possible climate change outcomes on the South African economy
- Benchmarking and revisions to South Africa's National Accounts and Balance of Payments Statistics
- The Economic Impacts of Alternative Electricity Options
- The impact of higher mark-ups on the South African Economy
- Calculation of the exchange rate pass through to inflation
- The determinants of capital flow reversal
- Assessment of the impact of reduced government expenditure on the economy
- Assessment of the impact of PIT and VAT proposals on the economy
- Trends in gross profitability
- The impact of various funding options for Eskom on the economy
- Various short reports on:
 - The impact of a UIF holiday
 - Electricity intensity of various sectors based on supply and use tables
 - Multipliers for specific industries



The impact of shutting down the aluminum smelters

The impact of introducing an increase to the electricity levy