

Consultancy to Develop and Implement a
Macroeconomic Model for Lesotho (DIMMoL)

Macro-Econom(etr)ic Modelling

Part 2

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Course program

- Introduction
- **Outline of macroeconom(etr)ic models (cont.)**
- Macroeconomic framework
- Econometric methodology
- Applied econometrics with EViews
- Lesotho case studies

The IS-identity: goods and capital market intertwined

$$Y/D = C + S$$

$$Y = C + S$$

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$$D = C + S$$

$$\cancel{C} + I = \cancel{C} + S$$

$$I = S$$

Time frames

- The short run (a few years)
 - output driven primarily by demand
 - no significant price/wage movements
 - analytical framework: IS-LM
- The medium run (up to a decade)
 - output determined by supply factors
 - adjustment via price and wage movements
 - fixed stock of capital, labor, technology
 - analytical framework: AD-AS
- The long run (more than a decade)
 - accumulation effects of (physical and human) capital, technological progress
 - analytical framework: growth-models

Types of variables

- By status
 - endogenous
 - exogenous
 - third-party sources
 - autoregressive forecasts (outside the model)

- Most important/interesting variables
 - output
 - income
 - (un)employment
 - inflation

Types of equations

- Assumption-based equations
 - Behavioural (e.g. consumption function)
 - Technological (e.g. production function)
 - Institutional (e.g. tax revenues)
- Simple identities
 - e.g. disposable income
- Equilibrium conditions
 - e.g. market clearing condition
- Closed system of equations for capturing interactions and feed-backs

Supply, demand and market prices

- What drives demand and supply?
 - components/inputs of both market sides
 - behavioural equations (assumptions) for all involved sectors
- What happens when demand and supply don't match?
 - (temporal) disequilibriums
 - adjustment process (quantities, prices)
 - short run
 - medium run

Goods market (income and price block)

- Final demand meets production
- Price formation
- Short-run vs. long-run
 - long-run: income creation (economic growth) is supply-side-driven
 - short-run: level of final demand comes into play
 - ⇒ output gaps: actual GDP vs. potential GDP (changing capacity utilization, business cycles)
- Potential GDP
 - filter-approach (HP-filter)
 - production function + input factor stock approach

Goods market: demand side

- Final demand: $C + I + G + NX$
 - Private consumption (C)
 - Private Investment (I)
 - Government expenditure (G)
 - Foreign trade: Net exports (NX)
 - Exports (X)
 - minus: Imports (IM)
- } final domestic demand

Private consumption

- Important factors
 - real disposable income: current or permanent?
 - wealth
 - real interest rates
- Sub-components
 - durables
 - non-durables
 - services

Private investment

- Private non-residential investment
 - [expected] output or output-gap (rate of capacity utilization)
 - user cost of capital (influenced by real interest rate)
- Private residential investment
 - real disposable income (again: current or permanent)
 - real interest rate

Government expenditure

- Consumption
 - Investment
 - ⇒ Expenditure for goods and services only!
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- Both usually (but not necessarily) exogenous
 - bound by budgetary rules
 - counter-cyclical use of fiscal policy
 - Distinction between consumption and investment matters in the long run!

Exports (= final foreign demand)

- GDP of main trading partners
 - Relative export prices
(international competitiveness)
 - domestic production costs
 - foreign prices (in main trading partners)
 - nominal exchange rates
 - Trade agreements, tariffs
- } real effective exchange rate

Imports (= foreign production)

- Domestic final demand or production
- Relative import prices (see previous slide)
 - domestic production costs
 - foreign prices
 - nominal exchange rates
- Trade agreements, tariffs
- Special case: non-substitutional goods (oil, raw materials)