Refresher on Fiscal Accounts, Analysis and Forecasting

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Milan Zavadjil
Consultant

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1. REFRESHER ON FISCAL ACCOUNTS

Revision: Material Covered in Introductory Course

- Structure of Fiscal accounts: Revenue, Expenditure, Financing.

- Fiscal Coverage: Central government, general government, consolidated public sector.

- Fiscal policy: objectives; medium-term considerations; revenue, spending, and financing constraints.

- Basic debt sustainability concepts.

Revision: Basic Budget Structure

Summary of Government Operations	
Total revenues and Grants	Total expenditures and net lending
Tax revenues	Current expenditures
Direct taxes	Noninterest expenditures
Taxes on income	Wages and salaries
Taxes on wealth	Goods and services
Indirect taxes	Transfers
Taxes on goods and services	Pensions
Taxes on imports	Subsidies
Other tax revenues	Other transfers
Nontax revenue	Interest payments
License, fees, etc.	Other current expenditures
Central Bank profits	Capital expenditures
Grants	Net Lending
Overall balance = (Total revenues and grants) − (total expenditures and net lending)	
Total financing (= - Overall balance)	
Foreign borrowing (net)	
New borrowing (disbursements)	
Amortization	
Domestic bank borrowing	
Domestic non-bank borrowing	
Privatization receipts	

International Comparison and Sustainability

- Myanmar has low revenue collection, spends little, and has a small overall deficit.

- Budget provides little support to growth in terms of developing the infrastructure and social safety net.

- Potential to support growth by increasing revenues and expenditures, while low overall deficit ensures that public debt is sustainable.

- Public debt is sustainable if kept within reasonable limits relative to GDP; Myanmar has low debt-to-GDP ratio and is considered at low risk of debt distress.

2. FORECASTING REVENUES, EXPENDITURES, AND FINANCING

General Principles of Fiscal Forecasting

- Fiscal forecasting based on consistent set of macroeconomic assumptions – e.g., for GDP, BOP.

- Revenues typically reflect the level of economic activity

- Expenditures depend more, but not entirely, on policymakers' discretion

- Achieving consistency between the fiscal accounts and the macroeconomic environment requires an iterative process of adjustment, because fiscal outcomes also affect economic activity.

Forecasting Tax Revenues

Revenue Forecast =

Tax Base Forecast * Tax Rate Assumption

The tax base is what you are taxing: income, imports, consumption, property, etc.

To forecast any type of revenue one needs to project:
- Tax base: use proxy tax base
- Tax rate: use
  - Effective Tax Rate approach

Choosing A Tax Base

- A good proxy for the tax base should be highly correlated with the tax base, and be justified on economic ground
  - For example, GDP may be a proxy for personal income, assuming that household income grows at same rate as GDP
  - Private consumption could serve as a proxy for the base of a value added or sales tax
  - Imports may be a good proxy for imports subject to tax

Possible Proxy Tax Bases

	Useful proxies
Individual income tax	Personal income, nominal GDP
Corporate income tax	Corporate profits, nominal GDP
VAT, Excise taxes, sale tax	Nominal private consumption, nominal GDP
Import duties	Imports
Export duties	Exports
Other taxes	Nominal GDP (at factor prices)
Non-tax revenues	Nominal GDP, Mining GDP

Effective tax rate approach to Forecast Revenues

$$\text{Effective Tax Rate} = \frac{\text{Tax Revenues}}{\text{Proxy Tax Base}}$$

Methodology:

- Calculate the observed effective tax rate from historical data $\rightarrow$ assume effective tax rate for projection period

- Forecast the tax base

- Forecast revenues = forecast of tax base $*$ effective tax rate

Assumes unchanged tax base structure, tax system, compliance ratio.

A Simple Example of Forecasting with the Effective Rate

	2014	2015 (proj)
Imports ($)	100	120
Customs Duties ($)	5	6
Effective Tax Rate (%)	5%	5%

Effective Tax Rate Approach: Another Example

	1996	1997	1998	1999	2000	2001p
Import duties	97.0	100.8	103.8	114.2	126.0	
Imports	1,000.0	1,050.0	1,070.0	1,120.0	1,200.0	1,300.0
Effective tax rate	9.7	9.6	9.7	10.2	10.5	

If use average eff. tax rate of 1996–2000 (= 9.9%): Projected import duties: 9.9% * 1,300 = 129.2

Forecasting Non-Tax Revenues and Grants

- Non-tax revenues include property tax, fees and charges, Central Bank and state-owned enterprise profits, mineral royalties etc.
  - Check if stable in percent of GDP (often are)
  - If they are fixed and determined (ex. fees or fines), increase only for inflation or other price changes.
  - Royalties depend on volume/value of output.
  - Some components might have autonomous life (Central Bank profits) and do not depend on GDP.

Tax Bases in Myanmar Spreadsheet

Tax	Base
Taxes on income and profits	
SEE	
Mineral	Change in gas exports + ad hoc adjustment
Non-mineral	Nominal GDP
Other	Nominal GDP
Commercial tax	
SEE	Nominal GDP
Other	Nominal GDP
Taxes on state property use	
Tax on Extraction of Oil and Gas	Gas exports (in kyat)
Tax on Communication Services	License fee schedule (based on discussions)
Other	Nominal GDP
Customs duties	Growth of Imports
Excise duties	Growth of Imports
Other taxes	Nominal GDP

Non-Tax Bases in Myanmar Spreadsheet

Non-tax revenues	
Transfers from SEES to Union Government	Nominal GDP
Other current receipts	Nominal GDP
Interest receipts	Nominal GDP
Capital receipts	Nominal GDP
Receipts from Government investments	Nominal GDP
Grants	Grants BoP

Example: Forecasting "Other" Taxes on Profits and Income

Formula in spreadsheet 'Fisc Central Gov' for G11:

- 'Fisc Central Gov %GDP'!G11/100 (percent of GDP in current year) *'Fisc Central Gov %GDP'!G$81 (Nominal GDP).

- 'Fisc Central Gov %GDP'!G11/100 (percent of GDP in current year)= 'Fisc Central Gov %GDP'!F11/100 (percent of GDP in previous year)+0.1

- We increase the effective tax rate by 0.1 because tax collection is improving.

- Thus, collection of this tax increases from 1.8% to

1.9 % of GDP

Non-Tax Mineral Revenues of SEEs

- This is G12 in spreadsheet 'Fisc SEE – agg'
- F12 (Non-Tax mineral revenues in the previous year)*(1+G104(Change in % of gas exports in billions of kyat))+G13 (adjustment factor).
- G104—ad hoc based on discussion with company or government
- G13 =500 billion kyat; profits increase as depreciation decreases over time with capital investments

Forecasting discretionary expenditures (I)

Wages and salaries (E)= number of employees (Q)* wage (W)

- Number of employees reflects structure of government, depends on institutional reforms.
- Wage rates forecast using CPI inflation but good knowledge of wage system is needed (take benefits into account)

Goods and services:

- Quantity varies with real GDP or on policies;
- Prices: choose deflator carefully (CPI, deflator)

Forecasting discretionary expenditures (II)

Subsidies and transfers

Each subsidy needs to be considered individually; if subsidies depend on automatic mechanism (ex. fuel, energy, food subsidies) estimate demand and price projections.

Capital expenditures

Consider ongoing projects, maintenance needs, inflation, and government plans. Can examine major projects on an individual basis.

Interest payments

Interest payments are made on both existing and new debt, and on domestic and foreign debt

- **For the existing debt** apply an average interest rate to the stock of outstanding debt (e.g., at start of year).

- **For the new debt**

  o Assume that it is incurred at mid-year

  o Interest payments on foreign and domestic debt should be forecast separately.

Financing items

Total financing = - overall balance
Foreign (net)
New borrowing
Repayments
Domestic
Bank lending (net) – including C. Bank
New borrowing
Repayments of debt
Deposits
Non-Bank (net)
Privatization receipts

Financing is (in most cases) a residual, derived from forecasts of fiscal revenues and expenditures. However, if financing is constrained, adjustment in revenues and spending may be needed. Check consistency with other accounts (BOP)

Trade-offs In Budget Deficit Financing

Central bank	Inflation or balance of payments pressure

Commercial banks	Refinanced by central bank?
	    Yes → Inflation
	    No → Crowding out; higher interest rates

Non-bank domestic	Crowding out; higher interest rates
External	Debt service; external sustainability issues
Arrears	Loss of credibility

Forecasting External Financing

Issuing bonds abroad or obtaining loans from IFIs, private banks and foreign governments. Access to larger pools of savings fills finance gap, but could leave currency mismatches, many risks.

Depends on many factors. In a market environment, including foreign vs. domestic interest rates, access to international markets

But in a more aid-dependent country depends without access to international markets depends on

- o Repayment schedule
- o Existing undisbursed loans
- o Likely drawings on new loans based on donor statements, including at donor meetings.

Forecasting domestic financing

Bank financing:

- From central bank and commercial banks.

- For commercial banks depends on interest rates, alternative lending opportunities.

- Central Bank lends according to its statutes.

- If negative, government is building up deposits.

Non-bank financing:

- Depends on development of domestic capital markets, interest rates, alternative assets, public confidence in government.

Forecasting Privatization Receipts

Review transactions already in progress—
because of lags in preparation.

Discuss with government officials which assets
are likely to be sold.

Depends on:

- structural policies
- size of state-owned sector
- value of state-owned assets
- terms of sales

3. FISCAL INDICATORS AND INTRODUCTION TO DEBT SUSTAINABILITY ANALYSIS

How do we Measure Fiscal Performance?

- Measures of fiscal performance:
  - Fiscal balances
  - Fiscal sustainability (i.e., whether public debt tends to rise without limit)
- No single best measure of (im)balance.
- Several can be used, depending on objective of analysis.

Fiscal Balances

- The (Conventional) Overall Fiscal Deficit
- Adjusted Overall Fiscal Balance
- Primary balance
- Current fiscal balance

The (Conventional) Overall Fiscal Deficit

Total revenues and grants –
Total expenditures and net lending =
OVERALL BALANCE

- It reflects the financing needs of the general government, and is sometimes called the <u>net borrowing requirement</u>

- It is usually presented in percent of GDP

Adjusted overall fiscal balance

> Overall balance –
> Selected items =
> ADJUSTED OVERALL BALANCE

- It excludes revenues not predictable or out of government control (e.g. telcom licenses Myanmar); externally financed project spending (i.e. financed by grants or "project loans")

- Better measure of government's performance

- The adjusted fiscal balance is often used a performance criterion in IMF programs

Primary balance

> Total revenues and grants –
> (Total expenditures and net lending
> minus interest payments) =
> PRIMARY BALANCE

- Examines <u>current discretionary</u> budgetary policy or fiscal effort. Excludes current interest payments which depends on the stock of debt.

- Shows how recent policies affect government debt.

- The *debt-stabilizing primary balance* is the primary balance necessary to keep the debt-to-GDP constant

Current fiscal balance

> Current revenues –
> Current expenditures =
> CURRENT BALANCE

- Used as measure of government savings.

- Targeting the current balance can help safeguard investment in times of fiscal consolidation.

- Relies on distinction between current and capital expenditures, can be arbitrary:
  - Investment spending may not always be productive

Stock Indicators Of Fiscal Performance

- Fiscal analysis has traditionally focused on flows, but key stocks related to fiscal performance, especially government debt, also needs to be monitored.

- Flows create stocks, and reconciling them serves as a consistency check.

Revision: Stocks and Flows

- Stock: snapshot at a point in time
  - Your age, weight, and the balance on your bank account are stocks
  - "as of end-December"
- Flow: changes in the stock within a certain period
  - Your salary payments into your bank account, your housing loan payments
 - "in December"

The Sustainability Of Fiscal Policy

- When is the stance of fiscal policy unsustainable?
- Broad agreement that (rapid) increases in the *debt-to-GDP* ratio are problematic
  - High debt ratios increase interest rates
  - High debt ratios increase debt service costs
  - These put pressure on fiscal policy

What Does "Debt Sustainability" Mean?

- Developing countries face challenges difficult to reconcile: Meet development objectives ➔ need to invest ➔ borrow ➔ debt accumulation ➔ potential for crisis

- Objective is to maintain debt at "sustainable" levels: avoid sharp adjustments in expenditure, deterioration in living standards, social tensions from sharp adjustments, exchange rate devaluation, consumption collapse.

- Fiscal crisis has spillovers to financial and external sectors.

Vicious circle of deficits and debt

Higher interest payments

Deficit

Borrowing

Increase in debt
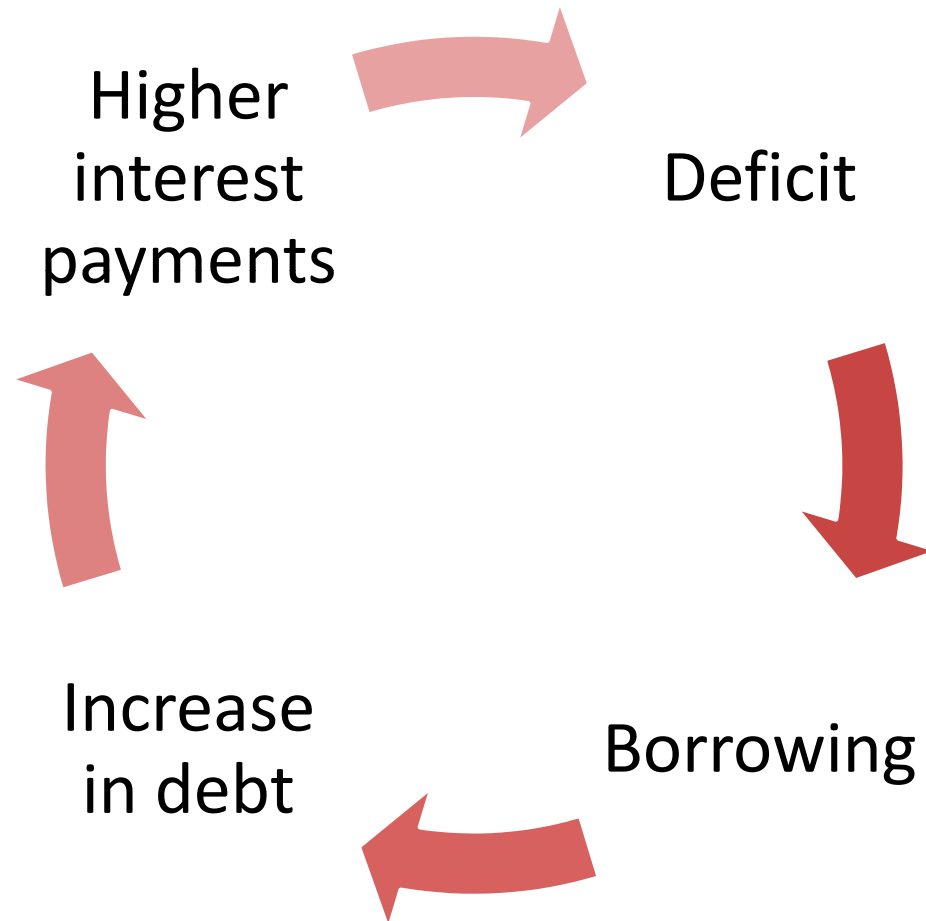
How do we measure sustainability?

Solvency

- PV of debt/GDP
- PV of debt/exports
- PV of debt/revenues

Liquidity

- Debt service/exports
- Debt service/revenues

Revision: Present value

- Present value (PV) quantifies the debt burden and makes it easier to compare between different loans
- PV takes into account
  - Maturity (M), grace period and profile of repayment
  - Interest rate
  - Debt service (Amortization/repayment, Interest payments)
  - Currency and discount rate (sometimes risk-free or reference rate) in that currency (r)

$$PV_t = \frac{service_{t+1}}{(1+r)} + \frac{service_{t+2}}{(1+r)^2} + \frac{service_{t+3}}{(1+r)^3} + ... + \frac{service_{t+M}}{(1+r)^M}$$

THANK YOU