The Government Sector

INTRODUCTION

Government Sector activities:

- Collect revenue (primarily taxes)
- Produce goods and services (nonmarket)
- Redistribute income via transfers

➡ Financing (to/from other sectors)

What is the government's macroeconomic impact?
Is government activity sustainable over time?

INTRODUCTION

Four main blocks of information (statements) are used to summarize the Government Sector:

Stocks	Flows		Stocks
Opening Balance Sheet	**Statement of Government Operations**	**Statement of Other Economic Flows**	**Closing Balance Sheet**
At the beginning of the year	*During the year* 2013	*During the year* 2013	*At the end of the year*

INTRODUCTION

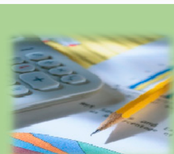
Basic relationship between the four financial statements:

Opening Balance Sheet + **SGO** + **SOEF** = **Closing Balance Sheet**

OBJECTIVES

- Identify which institutions are covered
- Show main items in the fiscal accounts
- Define key balances SUMMARY
- Determine how government activity is financed
- Analyze the fiscal position (flows) during the year
- Analyze stocks snapshot - point in time

OUTLINE



Fiscal Accounts

Fiscal Balances & Indicators

SUMMARY

flows

Stock Indicators

SUMMARY

The Government Sector

1. GFS Accounting

INTERNATIONAL MONETARY FUND

SECTION 1.1
The basics of government accounts

Introducing the government accounts, some key points:

Stocks

Int'l Reserves
Natural Resour

Flow

Common reporting:

R, E, financing

Changes in assets and liabilities

Debt

Common language

Different presentations ⇒ **GFSM Standard**

GFS

Some advantages of the GFSM 2001:

Comprehensive	Policy analysis within country — Accrual
Comparable	Between and within countries
Compatible	With other macro statistics, international accounting standards — priv sector bal sheets income statements
Robust	Integrated framework, tested

GFS

In particular, GFSM facilitates analysis by focusing on two main issues:

Unsust: erodes, depletes.

Assets and Liabilities — Balance sheet

"Wealth" being entrusted to the gov't

Government Net Worth

Impact of government operations — Flows

Sustainable: maintains or even builds net worth

SECTION 1.1
The basics of government accounts

Some key accounting principles in GFS:

Who?

Coverage	**Accrual basis**
Consolidation	**Valuation**

How

GFS

We will follow the 2nd Edition of the Government Finance Statistics Manual (2001).

GFS summarize information on:

- Activities
- Financial condition
- Both at a point in time (stocks) and over a period (flows)

…and are integrated with other macroeconomic sectors (SNA, BOP, MS)

Coverage

What constitutes the Public Sector?

General Government

- Central Government
- State governments
- Local governments

Public Corporations

- Financial
  - Monetary, including the Central Bank
  - Nonmonetary financial public corporations
- Non-financial

creation of $

Example: Coverage

Ministry of Foreign Affairs → Central Government

State Oil Company → Nonfinancial Public Corporation

State-owned Agricultural Bank → (deposits-taking) Financial Monetary Public Corporation

State-owned Agricultural Bank → (not deposit-taking) Financial Nonmonetary Public Corporation

Accrual

When are flows recorded?

when…

commitments/obligations are created

- ownership of goods changes
- services are provided
- obligation to pay taxes is created
- claim to a social benefit payment is established
- or, other unconditional claims are established

Not necessarily when payments are made (cash basis)

Example: Accrual

In mid-December 2013, an interest payment of $100 million comes due.

Because of lack of funds, the government of Fiscalia decides to postpone payment until mid-January 2014.

2013	Cash	Accrual
Interest	0	100
Change in liabilities	0	100
of which: arrears	0	100

Expense

financing

Cash

Question: in which case will the 2013 fiscal balance be greater?

Example: Accrual

After an increase in revenues in early 2014, the government makes the interest payment out of its bank deposits.

What now? (Assume no other interest payments due in 2014)

2014	Cash	Accrual
Interest	100	0
Change in arrears	0	↓L -100
Change in financial assets (bank deposits)	-100	↓A -100

NW = A-L

Note: in accrual basis, net worth does not change (Why?)

Consolidation

How do we aggregate over different levels?

Eliminate all transactions and debtor-creditor relationships between units being consolidated

(Same principle applied in other sectors)

Complete consolidation of the public sector allows:

- Assessment of overall impact on the economy
- More accurate evaluation of fiscal sustainability

Example: Consolidation - Flows

Consolidating the General Government (SGO):

Central Government		State Governments	General Government
Revenue	500	80	540
Tax Revenue	480	40	520
Grants	20	40	20
Expenses	420	55	435
Compensation of employees	300	30	330
Use of goods and services	50	10	60
Grants	40	0	0
Other	30	15	45
Net operating balance	80	25	105

Foreign govts

State govts

+

Example: Consolidation - Stocks

Consolidating the Public Sector (Balance Sheet):

central bank

state-owned

General Government	
Assets	20,000
Nonfinancial	18,000
Financial	2,000
of which: deposits in CB	100
Liabilities	5,500
To non-residents	3,000
To private sector	2,000
To state-owned banks	500
Net worth	14,500

Public Corporations	
Assets	5,000
Nonfinancial	3,000
Financial	2,000
of which: Loans to government	500
Liabilities	1,100
To non-residents	100
To private sector	900
To the government	100
Net worth	3,900

Public sector	
Assets	24,400
Nonfinancial	21,000
Financial	= 2,000 + 2,000 -100 – 500 = 3,400
Liabilities	6,000
To non-residents	3,100
To private sector	2,900
Net worth	= 24,400 – 6,000 = 18,400

Public sector net worth is equal to the simple sum here as well.

Valuation

At market prices that are current…

- on the balance sheet date (stocks)
- on the date in which transactions are *recorded* (flows)
- some estimation or partitioning may be needed
- changes in market value between two periods are recorded in the Statement of Other Economic Flows (more on this later…)

Example Valuation

During 2013 (from December 31, 2012 to December 31, 2013):

value changes

- Fiscalia's currency depreciates by 25%
- Bond holdings by public utilities lose 5% in value
- The value of public land appreciates by 10%

(Assume no changes in volume)

SOEF

Selected Assets	12/31/12	S OEF 2013	12/31/2013
Financial monetary public corporations (Central Bank): IR	500	125	625
Nonfinancial public corporations: Securities other than shares	20	−1	19
Central government: Nonproduced assets (land)	1,200	120	1,320

SECTION 1.2
The Statement of Government Operations

flows

- Summarizes government activity during the year.
- Records transactions, of two major types:

Transactions affecting net worth	→	Revenue Expense
Transactions in:	→	Nonfinancial assets Financial assets Liabilities (financing)

Top

Bottom

Recall: SGO has an impact on the government's balance sheet.

Transactions affecting Net Worth

1 Revenue

11 Taxes
- On income, profits, capital gains
- Payroll and workforce
- Property
- Goods & services
- International trade & transactions

12 Social contributions
- Social security
- Other

13 Grants
- From foreign gov'ts
- From international organizations
- From other government

14 Other revenue
- Property
- Interest
- Other

2 Expense

21 Compensation of employees
- Wages and salaries
- Social contributions

22 Use of goods and services

23 Consumption of fixed capital

prod

24 Interest
- To nonresidents
- To non-public sector residents
- To other public sector

25 Subsidies

26 Grants

27 Social benefits

28 Other

Transactions affecting net worth

NOB

$B_b + 560 + SOEF = B_f$

The balance of transactions affecting net worth is called the "Net Operating Balance"

→ ≠ 0

1 Revenue − **2** Expense

= Net operating balance

Affects → NW

Question: Can we therefore say that the change in net worth during the year is exactly equal to the net operating balance?

"Use" vs "Purchase" of goods and services

Corresponds to accrual vs cash

Fiscalia's Ministry of Education purchases 2,000 boxes of pencils (at $8.50 each) in late 2013 for several schools that are being built.

Construction of the schools is then completed in March 2014 and the pencils are delivered to the schools.

	2013	2014
Purchase of G&S (cash)	17,000	0
Use of G&S (accrual)	0	17,000
Change in inventories	17,000	−17,000
Change in gov't deposits	−17,000	0

ΔA = 0

BS items

Consumption of fixed capital

GFS Expense

Essentially equivalent to depreciation (normal wear and tear)

Fiscalia's public infrastructure (roads, dams, port facilities, bridges) is estimated to depreciate by about 1.5% in 2013.

Balance sheet end-2012	SGO 2012	Balance sheet end-2013
Asset: Infrastructure	Expense: Consumption of fixed capital	Asset: Infrastructure
10,000	−150	9,850

SECTION 1.2
The Statement of Government Operations

Now we'll focus on the second block of the SGO:

Transactions affecting net worth → Revenue − Expense = NOB

Transactions in: → Nonfinancial assets, Financial assets, Liabilities (financing)

Note: These transactions do not affect net worth.

Transcriptions in assets and liabilities

31 Nonfinancial Assets

- **311** Fixed assets
  - Buildings and structures
  - Machinery and equipment
  - Other fixed assets
- **312** Inventories
  - Strategic stocks
  - Other inventories
- **313** Valuables
- **314** Nonproduced assets
  - Land
  - Subsoil assets
  - Other naturally occurring assets
  - Intangible nonproduced assets

32 Financial assets

- **321** Domestic
  - Currency and deposits
  - Securities other than shares
  - Loans
  - Shares and other equity
  - Insurance technical reserves
  - Financial derivatives
  - Other accounts receivable

  domestic

  bank

  public

  *
- **322** Foreign
  - (Same as * above)
- **323** Monetary gold and SDRs

33 Liabilities

- **331** Domestic
  - (Same as * above)
- **332** Foreign
  - (Same as * above)

Net lending/borrowing

R − E = NOB

Once the acquisition of nonfinancial assets is considered, we arrive at another key balance:

NANA

Net operating balance − Net acquisition of nonfinancial assets = Net lending/borrowing

NLB

↑L

↓A

Note: If <0, then government must *receive* (net) financing for its activities; increase liabilities and/or reduce financial assets.

Approximately equal to the Overall Balance (next slides).

Net lending/borrowing

Another point of view:

Net acquisition of financial assets − Net incurrence of liabilities = Net lending/borrowing

Net changs in FA, FL ⟹ NFW

Note: With some adjustments (not always applicable), we arrive at the Overall Balance (next slide)

Overall balance

Adjustment to account for operations in assets & liabilities for *policy purposes*.

Net lending/borrowing − Privatization proceeds and fixed asset disposals − Policy loans = Overall balance

Overall ≤ NLB

Net acquis FA

Note: In this presentation, policy loans are reclassified as ~~*spending*~~. The above adjustments will tend to lower the overall balance relative to net lending/borrowing.

Recap: Statement of Government Operations

Revenue − Expense = Net operating balance

NANA

− Net acquisition of nonfinancial assets = Net lending/ borrowing

− Adjustments for "policy" financial transactions = Overall balance

SECTION 1.3 Financing the Budget

Whenever net lending/borrowing is negative, the government requires financing from other sectors:

- Domestic
  - Financial sector
    - ~~Central bank*~~
    - ~~State-owned banks*~~
    - Private banks
  - Nonfinancial private sector
- Foreign

* These are no longer relevant when considering the Consolidated Public Sector. Why?

SECTION 1.3
Financing the Budget

The following equation always holds (General Government):

40

10 FS 10 20

- *NLB* = Central bank + State-owned banks + Private banks

Dom

+ Nonfinancial private sector 10

-10

+ Nonresidents

Foreign

Note: When *NLB*<0, the sum of all (net) financing should be >0, but not necessarily each of the components individually.

Pressures on other sectors

A=L
CBank

↑Lg | ↓Dep g
↓Lb ↑Borrowing For ↑BM

The central bank:

Central bank financing of the government → Expansion of Assets ↑(L_g) → Strains on central bank balance sheet

Central bank financing of the government → Reduction of Funds ↓(Dep_g) → Strains on central bank balance sheet

The CB will offset by reducing other assets and/or increasing other sources of funds (base money)

banks → loans priv ↑BM Accum For Debt

Result: possible crowding out and/or inflation.

Pressures on other sectors

State-owned and private banks:

Government financing by banks

Expansion of Assets
$\uparrow(L_g)$

Reduction of Funds
$\downarrow(Dep_g)$

Strains on bank balance sheets

- Initial conditions:
- Large financing
- Persistent

macro strains

crowding out, foreign debt, $\uparrow i$

Question: how will banks respond? What are the likely macroeconomic effects? $\downarrow$ L private sector; $\uparrow$ borrowing < Foreign, $\uparrow$ Deposits

Pressures on other sectors

Nonfinancial private sector (businesses and households):

Government financing

Expansion of assets
(lending to the government)

$\uparrow L$

Reduce other assets:
- Bank deposits
- Corporate shares
- Foreign assets

Increase borrowing:
- Bank loans
- Foreign borrowing

Note: some reactions (in red) will indirectly strain bank balance sheets (similarly to previous slide)

Pressures on other sectors

Finally, foreign borrowing:

Government financing → Expansion of liabilities with nonresidents = Increase in foreign debt

Note: from the point of view of the balance of payments, this amounts to a capital *inflow*.

Recap 1

All modes of government financing are associated with an increase in liabilities or decline in assets, with respect to:

- the central bank
- "other depository corporations" (commercial banks) state / priv
- the nonfinancial private sector
- nonresidents

$\downarrow NFW = \downarrow FA - L \uparrow$

Note: Therefore, all are associated with declines in the government's *financial net worth*.

Recap 1 (cont)

Question: What about arrears and privatization? Aren't these possible avenues for financing the budget as well?

Answer: Yes, and both should be incorporated in the accounting:

- Arrears: increase in liabilities with respect to another sector ↑L ⇒ ↓NW
- Privatization: drawdown of nonfinancial assets Subsidy

Market Valuation ↓NFA (mp) ↑Proceeds = NFA (mp) NW ↓NW

Note: Arrears are associated with a decline in *net worth*, while privatizations may or may not be (depends on sale price)

Recap 2

The pressures exerted by government financing result in some combination of the following macroeconomic pressures:

- Inflation ✓ expansion of BM
- Crowding out ✓ Substituting priv for public
- Rising debt (domestic and/or foreign)
- Possible unsustainability

Note: severity will depend on how large and how sustained these financing requirements are.

SECTION 1.4
Stocks and flows

Recall our basic identity between the four main GFS statements:

Jan 1st, 2012 — Jan 1st 2013

Opening Balance Sheet + **SGO** + **SOEF** = **Closing Balance Sheet**

Transactions — Value Volume

Now let's take a closer look at the Balance Sheet.

The balance sheet

61 Nonfinancial Assets

611 Fixed assets

- Buildings and structures
- Machinery and equipment
- Other fixed assets

612 Inventories

- Strategic stocks
- Other inventories

613 Valuables

614 Nonproduced assets

- Land
- Subsoil assets
- Other naturally occurring assets
- Intangible nonproduced assets

Note: structure identical to that of "Transactions in assets and liabilities".

62 Financial assets

621 Domestic

- Currency and deposits
- Securities other than shares
- Loans
- Shares and other equity
- Insurance technical reserves
- Financial derivatives
- Other accounts receivable

622 Foreign

- (Same as above)

623 Monetary gold and SDRs

63 Liabilities

631 Domestic

- (Same as above)

632 Foreign

- (Same as above)

Net Worth = Nonfinancial assets + Financial assets - Liabilities

Key stocks

The balance sheet produces several stocks that are highly relevant for analyzing fiscal policy over time:

- Total liabilities (gross debt stock) domestic / foreign
- Net worth
- Net financial worth = net financial wealth position

Note: While all are highly informative, net worth is the most comprehensive.

Two key stocks

As the previous identity shows, changes in the debt stock and in net worth are caused by:

- Fiscal policy (SGO)
- Changes in volume or value (SOEF), mostly non-policy related.

Now let's take a closer look at the Statement of Other Economic Flows.

Other economic flows

For each line, the SOEF records two types of changes:

Jan 1, 2012

Opening Balance Sheet

- Nonfinancial assets
  - Fixed & inventories
  - Valuables & others
- Financial Assets
  - Domestic & Foreign
- Liabilities
  - Domestic & Foreign

Throughout 2012

Holding Gains ~~(or losses)~~

(+) or (−)

Throughout 2012

Other changes in volume

(Not transactions)

Note: Unlike the SGO, most of these changes are deemed to be beyond the government's control.

Mostly unrelated to fiscal policy

Exch rate depreciation

SOEF

SGO Fiscal pol

other changes

Other economic flows

What are these changes?

Holding gains (or losses) → Resulting from price changes → Exchange rates, market prices of stocks, bonds, land, and fixed assets

Other volume changes → Resulting from:
- recognition/derecognition
- quantity or quality
- reclassification

→ Discoveries, catastrophes, growth/depletion, seizure

Note: under normal circumstances, holding gains are much more common than other volume changes.

Debt and net worth

affect NW

Question: What then causes changes in net worth and debt?

$R - E = NOB$ } SGO

- A positive or negative net operating balance…

and/or

- Holding gains and/or other changes in volume } SOEF

Note: this covers everything; there can be *no other cause* of a change in government net worth or debt!

Debt and net worth

In terms of two simple formulas:

Fiscal Policy

$$\Delta NW = NW_t - NW_{t-1} = NOB_t + OEF_t$$

$$\Delta NW = \Delta A - \Delta L$$

- Under normal circumstances (*OEF* small), changes in net worth are driven by fiscal policy (*NOB*).

$(-)NOB \rightarrow \downarrow NW$

- Therefore, a positive (negative) *NOB* will increase (decrease) net worth.

$\uparrow L$ $\downarrow A$

Note: while a reduction in net worth is inevitable, a negative NOB does not necessarily increase government debt (*L*).

Think of an example where this is the case.

Net financial worth

Two similar formulas for net *financial* worth (*NFW*):

$$\Delta NFW_t = \Delta FA_t - \Delta L_t$$

$$\Delta NFW_t = NLB_t = NOB_t - NANA_t$$

- Now we re-introduce net acquisition of nonfinancial assets (*NANA*).

Financing in net terms → $NOB = 0$, $NANA > 0$

- A government deficit (*NLB* < 0) will always reduce net financial worth.

↓NW ↑A, ↓FA

Note: also, while a reduction in net financial worth is inevitable, deficits do not necessarily reduce net worth or *L*.

Think of an example where this is the case.

INTERNATIONAL MONETARY FUND

SECTION 2.1
Fiscal balances

In order to analyze the government sector and fiscal policy in particular, several balances are useful:

Net operating balance (NOB) = Revenue - Expense — affects NW

Net lending/borrowing (NLB)
= NOB – net acquisition of nonfinancial assets NANA — NFW
= net acquisition of financial assets – net incurrence of liabilities

Overall balance (OB) = NLB adjusted for "policy" financial transactions
privatization, loans policy purpose

These are three balances that we discussed previously.

Fiscal balances

Other useful balances.

Gross operating balance (*GOB*) = Revenue – Expense, excluding consumption of fixed capital

- **Cash surplus/deficit** NLB, Cash
  = Net cash inflow from operating activities
  \- Net cash outflow from investments in nonfinancial assets

Overall primary balance = *OB* + net interest expenses — beyond scope pol

Primary operating balance = *NOB* + net interest expenses

(paid, received) L > FA

(+)

> Note: since net interest expenses tend to be positive (why?), primary balances are generally > *OB* and *NOB*, respectively

SECTION 2.1
Fiscal balances

Conceptually, the different fiscal balances tell us different things:

stimulative supportive to eco activity

OB: (Net) Contribution of the government sector to *aggregate demand*

Primary balance*: most closely related to *present policy*

PNOB, POB

Note: Can adjust different balances (NOB, OB, for example) by excluding net interest expense

SECTION 2.1
Fiscal balances

Conceptually, the different fiscal balances tell us different things:

NOB: Government savings (*link to the National Accounts*)

$S = S_p + S_g$

$NOB - \underbrace{NANA}_{I} = NLB$

NLB: Government savings-investment balance (*link to the CAB*)

$S_g - I_g$

Balance of payments $CAB = (S - I) = (S_g - I_g) + (S_p - I_p)$

Example

Fiscalia General Government 2013:

Receipts:
- Tax revenue = 500
- Grants = 30
- Interest income = 10
- Privatization proceeds = 80
- Fines & others = 5

Expenditures:
- Compensation of employees = 400
- Purchase of g&s = 30
- Interest payments = 15
- Subsidies = 10
- Social benefits = 25

Financial and other operations:
- Additional interest due (but payment postponed to 2014) = 10
- Purchased g&s not used in 2013 = 5
- Net Investment in fixed capital = 150 depreciation has been netted out
- Subsidized loans extended to coffee farmers = 20
- Depreciation of capital stock = 10

We will now calculate the main balances for Fiscalia.

Example (cont)

Revenue (R):
- Tax revenue = 500
- Grants = 30
- Interest income = 10
- ~~Privatization proceeds = 80~~ NANA
- Fines & others = 5

Total revenue =

$500 + 30 + 10 + 5 =$

545

Expense (E):
- Compensation of employees = 400
- Use of g&s = 30 – 5 = 25
- Interest = 15 + 10 = 25
- Subsidies = 10
- Social benefits = 25
- Consumption of fixed capital = 10

Total expense =

$400 + 25 + 25 + 10$

$+ 25 + 10 =$

495

Therefore, Net operating balance = $R – E$ = 545 – 495 = 50

Example (cont)

NLB = NOB − NANA

Net acquisition of nonfinancial assets:
Privatization proceeds = −80
Investment in fixed capital = 150
Change in inventories = 5

Total net acquisition of nonfinancial assets = −80 + 150 + 5 = 75

NOB – net acquisition of nonfinancial assets. Net lending/borrowing = 50 − 75 = −25

Thus, the general government must borrow 25 in net terms to finance operations.

What about gross borrowing, i.e. accumulation of liabilities? ↑FA

Since the increase in financial assets = 20 (why?), then liabilities must increase by 45 (assuming zero *OEF*).

This should be equal to the increase in government net debt.

Example (cont)

Net lending/borrowing – privatization proceeds – policy loans = −25 − 80 − 20 = Overall balance −125

Thus, the general government is generating an overall deficit of 125; or an excess of fiscal policy activities over revenue equal to this amount.

Primary balances are therefore straightforward to calculate:

Primary operating balance = *NOB* + net interest
= 50 + (25 − 10) = 65

Overall primary balance = Overall balance + net interest
= −125 + (25 − 10) = −110

Example (cont)

Finally, Gross operating balance (*GOB*)

= *NOB* + Consumption of fixed capital = 50 + 10 = 60

Other economic flows: assume no extraordinary events causing changes in the volume of assets, but the local currency depreciates by 13%.

Also assume that the stock of international reserves remains constant at 100 USD throughout 2013, and that the exchange rate at the beginning of the year was = 1.

Question: what is the change in net worth during 2013?

Example (cont)

Recalling our previous equation:

The change in net worth should be equal to the net operating balance plus other economic flows:

Thus:

ΔNW = NOB + OEF = 50 + 13 = 63

IR

100 → 13%

↑A: NANA 75

FA 20

OEF 13

108 ↑A

Note: net worth is increasing by 63, although debt is increasing by ↑45 (see three slides back).

What accounts for this difference?

So ΔA > ΔL, $\boxed{63}$

Recap

Summary of major changes in Fiscalia 2013:

Opening Balance Sheet	SGO	OEF	Closing Balance Sheet
A = 1,000 *L= 500* *NW = 500*	*R = 545* *E = 495* *NOB = 50* *NANA = 75* *NLB = -25* *ΔFA = 20* *ΔL = 45*	*ΔA = 13* depreciation IR ↑ Subsidized loan	ΔNW *NW = 563* *A = 1,108* *L = 545*

SECTION 2.2
Indicators of the fiscal position

Regardless of changes in policy, fiscal balances will change over the course of an economic cycle:

Generally speaking:

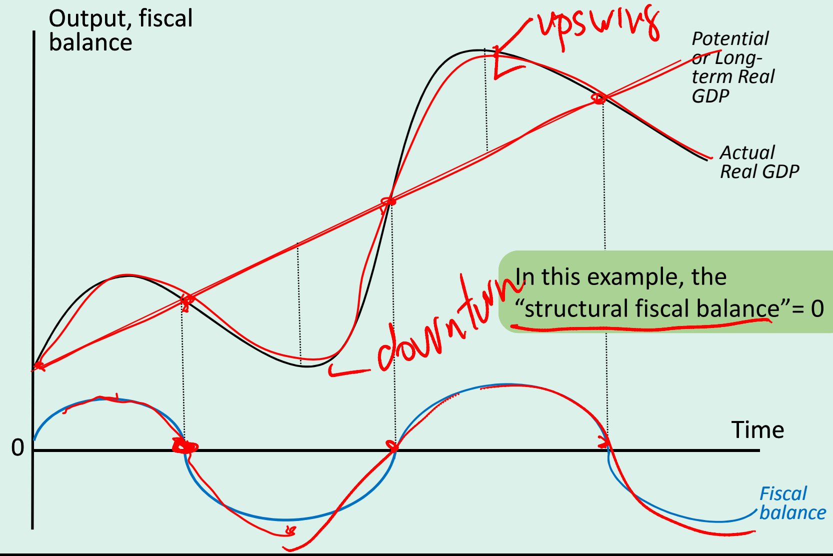
Revenues (taxes) are tied to the level of economic activity, rising during upswings, falling during downturns.

Expenses, on the other hand, are relatively stable throughout the cycle (some exceptions).

Thus, fiscal balances will naturally improve during upswings, deteriorate during downturns.

Indicators of the fiscal position

Fiscal balance and economic cycles (no policy change).



Indicators of the fiscal position

Therefore, in order to assess fiscal policy, one must adjust balances to account for the cyclical effect.

(If we observe unadjusted balances, we might incorrectly attribute changes in the balance to changes in policy.)

Question: which balance are we talking about?

OEF

Answer: can be *NOB* or net lending/borrowing
if we assume (for simplicity) that there are no major fixed asset sales, privatizations, or policy lending, then *NLB* = Overall Balance.

Fiscal policy

In this section, we will work through an example using the primary *NOB*.

How to adjust the fiscal balance: an example

Upturn = $Y_t > Y_p$ "positive output gap"

Downturn = $Y_t < Y_p$ "negative output gap"

South Africa, 2007-10, basic information.

	2006	2007	2008	2009	2010
	(billion 2005 Rand)				
Potential output	1,619	1,679	1,740	1,802	1,865
Actual Real output	1,659	1,751	1,814	1,784	1,833
GDP Deflator (2005=100)	106	115	125	134	145
Nominal terms	(billion current Rand)				
Revenue	464	537	600	576	640
Primary expense*	402	479	573	650	731
Primary net operating balance	62	58	27	-74	-91
Nominal GDP	1,767	2,016	2,274	2,396	2,663
Primary NOB (% of GDP)	3.5	2.9	1.2	-3.1	-3.4
Real terms	(billion 2005 Rand, unless otherwise specified)				
Revenue	436	467	479	429	441
Primary expense*	377	416	457	484	503

* Excludes interest payments

R - PE

$/145 \cdot 100$

Question: in what years did South Africa have a positive (negative) output gap? (+) 2006~2008, (-) 2009-10

How to adjust the fiscal balance: an example

Step 1: define the output gap as a ratio: $Gap = \frac{y_t}{y_t^p}$ > 1 up, < 1 down

Where y = real GDP, y^p = potential GDP

	2006	2007	2008	2009	2010
	(billion 2005 Rand)				
Potential output	1,619	1,679	1,740	1,802	1,865
Real output	1,659	1,751	1,814	1,784	1,833
Gap (ratio)	1.02	1.04	1.04	0.99	0.98

$\gamma > 1$

$\gamma < 1$

Step 2: Determine a historical "elasticity" of revenue γ with respect to output (various estimation techniques)

efficiency, exemptions, evasion

For simplicity: we can assume that the elasticity of revenue with respect to output is approximately equal to 1.

How to adjust the fiscal balance: an example

Step 3: adjust revenue (R) by the inverse of the gap and the elasticity:

$$AdjR = R\left(\frac{1}{Gap}\right)^{\gamma} = R\cdot\frac{y_t^p}{y_t}$$

$\gamma = 1$

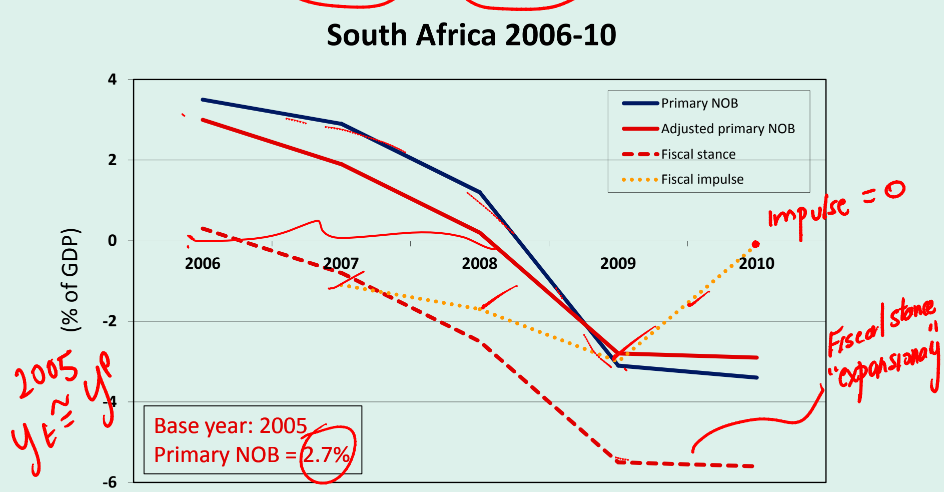
	2006	2007	2008	2009	2010
	(billion 2005 Rand, unless otherwise specified)				
Revenue (ℝ terms)	436	467	479	429	441
Gap (ratio)	1.02	1.04	1.04	0.99	0.98
Adjusted revenue	**426**	**448**	**460**	**433**	**449**

Step 4: compute the adjusted primary balance as adjusted revenue minus primary expense:

	(billion 2005 Rand, unless otherwise specified)				
Adjusted revenue	426	448	460	433	449
Primary expense (unadjusted)	377	416	457	484	503
Adjusted primary NOB	49	32	3	-51	-54
Adjusted primary NOB (% of Y^P)	**3.0**	**1.9**	**0.2**	**-2.8**	**-2.9**

How to adjust the fiscal balance: an example

Fiscal balances, stance, and impulse:



INTERNATIONAL MONETARY FUND

Stock Indicators

The GFS system allows for easy and coherent joint analysis of stocks and flows.

- Recall our identity: $\Delta NW = NOB + OEF$
- *OEF* can be sporadic and are largely beyond the control of the government ➡ two major stocks are primarily affected by the NOB (fiscal policy)

These stocks are: gross debt (*L*) and net worth (*NW*)

Introducing sustainability

A preliminary concept of sustainability:

In the simplest terms, one should be concerned about situations in which:

- Debt grows continuously (may lead to abrupt financing difficulties, crisis)

$NW = \uparrow A - \uparrow L$

- Net worth is continuously depleted (similar to above, plus possible long-term impoverishing impact)

Note: both indicators are useful, reveal different parts of the puzzle.

Example 1

Fiscalia 2013. As a percentage of GDP:

Social return?

- *NOB* = *OEF* = 0
- Therefore, *NW* remains constant at 30.

$\uparrow A$ by 10

- However, debt (*L*) increases from 35 to 45.

interest costs

Question: what does this imply, and should we be concerned?

Answer: it implies that the government has acquired nonfinancial assets (investment) equal to 10% of GDP. Should not be a concern *if social return is sufficient*.

Example 2

Fiscalia 2013. As a percentage of GDP:

- *NOB* = -5, *OEF* = 2 (recall that *NW* at beginning of 2013 is 30)
- Debt (*L*) declines from 35 to 31.

Question: what will be end-2013 *NW*? Should we be concerned?

Answer 1: *NW* = 30 – 5 + 2 = 27 (fell by 3). Also, if *L* falls by 4, then assets must have fallen by 7.

?

Answer 2: Concerns: (a) large operating deficit offset by *OEF* (how reliable?); and (b) large asset sales/privatization to finance debt reduction.

Example 3

Fiscalia 2013. As a percentage of GDP:

- *NOB* = -2, *OEF* = -15

one-time increase in L

- No change in government assets.

Question: what will be end-2013 *NW* and *L*? Think of an example where this type of scenario might occur. Should we be concerned?

Answer 1: *NW* = 30 – 2 – 15 = 13 (fell by 17). Since no change in assets, debt increases by same amount: *L* = 35 + 17 = 52.

Answer 2: Could occur as a result of a contingent liability becoming effective (crisis/banking system bailout).

Answer 3: Rapid adverse movements in both NW and L. May need fiscal adjustment (⇑ NOB) to re-build *NW* or pay down *L*.

Lessons

Lessons drawn from these examples:

• At times, debt and net worth tell similar stories (Example 3), when there is little happening on the asset side…

…but debt generally only tells a partial story:

- Incurring debt to finance acquisition of nonfinancial assets ($\Delta NW = 0$) raises questions of efficiency of investment (Example 1)
- depletion Debt may be falling, but beware of relying on sporadic "holding gains" and/or asset sales to reduce debt (Example 2).

• Thus, a more complete picture emerges when looking both at *NW* and *L*.

NW

remove cyclical:

Going forward, one should have an idea of the *structural* *NOB*, and of contingent liabilities (Example 3). future