National Accounts Workshop for SADC countries

16-19 June 2009, Windhoek, Namibia

Strengthening statistical capacity-building in support of progress towards the Internationally Agreed Developments Goals in the Southern African Development Community region

Overview of the System of National Accounts
National Accounts
General Overview

National Accounts Workshop for SADC Countries
June 16-19, 2009

Windhoek, Namibia
Lecture Outline

- general overview
- GDP – three approaches
- quarterly national accounts
SNA: **System of National Accounts**

- Comprehensive, integrated set of economic accounts, balance sheets and other tables describing all economic stocks and processes taking place within a country.
- System of concepts, definitions, classifications, and accounting rules often used as standards, or framework, for economic statistics in general.
SNA: Main Users and Uses

- Economic policy makers
- Business
- Scientific researchers, teachers
- General public
- Statisticians
What is a System of National Accounts?

**General Definition**

National accounts comprise all transactions within a time period (year, quarter, etc.) between the economic agents constituting the national economy and their stocks.
System of accounts

- Fully integrated and consistent
- Complete accounting description of the economy for:
  - The total economy
  - Sectors
  - Sub-sectors
In addition, the following are all integrated parts of the SNA:

- production accounts for industries
- supply and use, and input-output tables
- price and volume measures
- real income measures
- detailed flow of funds
System of National Accounts: Main Features

- Flexibility:
  - satellite accounts
  - social accounting matrices
  - environmental accounts
  - annual and quarterly accounts
  - alternative sectoring
  - adding more details
What is a System of National Accounts?

Basic Questions

Who does what?
With whom?
Concerning what?
How?
What for?
When?
How much?
## What is a System of National Accounts? *Basic Questions Answered*

<table>
<thead>
<tr>
<th>Who</th>
<th>Institutional units/Sectors</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Establishments/Industries</td>
</tr>
<tr>
<td>Does what?</td>
<td>Transactions/other flows</td>
</tr>
<tr>
<td>Concerning what?</td>
<td>Products, Assets, Liabilities</td>
</tr>
<tr>
<td>With whom?</td>
<td>Counterpart</td>
</tr>
</tbody>
</table>
What is a System of National Accounts?

Basic Questions Answered

How? Production process, income distribution, use of income, financing

What for? Function, purpose

When? Time of recording

How much? Valuation

Volume/price measurement
System of National Accounts: Main Features

Transactions

Production

Income distribution Use of income

↓ Saving +

Capital transfers

Stocks

Opening balance sheet

Nonfinancial assets

Financial assets and liabilities

Capital formation

Net lending

Financial transactions

Other Flows

Revaluation

Other volume changes

Stocks

Closing balance sheet

Nonfinancial assets

Financial assets and liabilities
GDP can be compiled
- from the production approach
- from the expenditure approach
- from the income approach
- using product flow balances in a supply and use framework

The data compiled using these approaches can provide the foundation for the wider sequence of accounts
GDP is derived as sum of value added of industries, plus net taxes and subsidies on products (if output is valued at basic prices)

- value added is output less intermediate consumption

- breakdown by industries following ISIC (but particulars will depend on country needs) and/or by institutional sector
Expenditure Approach

GDP is derived as sum of expenditure categories:
- household consumption
- consumption of government
- consumption of NPISH
- gross capital formation
- exports less imports
Income Approach

- GDP is derived as sum of:
  - wages and salaries
  - (net) operating surplus
  - net taxes and subsidies on production and imports
  - (consumption of fixed capital)
- breakdown by industry (ISIC)/sector
NA data can be presented as
- monetary values
- indices
- growth rates

through
- accounts
  - T-accounts
  - 1993 SNA matrix presentation of accounts
    - Supply and use tables
    - Input-output tables
- tables with time series
- graphs
**Example T Account: Production Account for the Total Economy**

<table>
<thead>
<tr>
<th>Uses</th>
<th>Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intermediate Consump.</td>
<td>Output</td>
</tr>
<tr>
<td>1883</td>
<td>3604</td>
</tr>
<tr>
<td>Gross Domestic Prod.</td>
<td>Taxes Minus</td>
</tr>
<tr>
<td>1854</td>
<td>133</td>
</tr>
<tr>
<td><em>Consump. of Fixed Cap.</em></td>
<td>Subsidies on Products</td>
</tr>
<tr>
<td><em>(222)</em></td>
<td></td>
</tr>
<tr>
<td><em>Net Domestic Product</em></td>
<td></td>
</tr>
<tr>
<td><em>(1632)</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3737</td>
</tr>
<tr>
<td></td>
<td>3737</td>
</tr>
</tbody>
</table>
### Supply and Use Tables

#### Supply

<table>
<thead>
<tr>
<th>Product</th>
<th>Industry 1,2,...n</th>
<th>Row</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>.</td>
<td></td>
<td></td>
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<tr>
<td>.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>.</td>
<td>Industries producing</td>
<td></td>
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<td>m</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Use

<table>
<thead>
<tr>
<th>Product</th>
<th>Industry 1,2,...n</th>
<th>Final Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Quadrant I</td>
<td>Cons.</td>
</tr>
<tr>
<td>2</td>
<td>Quadrant II</td>
<td>Fixed Cap.</td>
</tr>
<tr>
<td>.</td>
<td></td>
<td>Inventory</td>
</tr>
<tr>
<td>.</td>
<td></td>
<td>Exports</td>
</tr>
<tr>
<td>.</td>
<td></td>
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<td></td>
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<td>m</td>
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</tr>
</tbody>
</table>

Value Added

*Quadrant III*

Output
### Market Non-market Distinction

<table>
<thead>
<tr>
<th></th>
<th>Market Production</th>
<th>Production for Own Consumption</th>
<th>Non-market Production</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market Producers</td>
<td>●</td>
<td>○</td>
<td></td>
</tr>
<tr>
<td>Non-market Producers</td>
<td>○</td>
<td>○</td>
<td>●</td>
</tr>
</tbody>
</table>
Main Institutional Sectors

- Non-financial corporations
- Financial corporations
- General government
- Non-profit institutions serving households
- Households
- the Rest of the World (ROW)
FLOWS

— Creation, transformation, exchange, transfer, extinction of economic value due to
  • transactions
  • other events

— Refer to a period of time
— Are recorded in the accounts
STOCKS:

- Positions in, or holdings of assets and liabilities
- Refer to a *point* in time
- Are recorded on the *balance sheets*
ASSETS:

- An entity functioning as a store of value
  - over which ownership rights are enforced, and
  - from which economic benefits may be derived by its owner by holding it, or using it, over a period of time
Accounts and Balancing Items

Production Account
Value Added/GDP

Generation of Income Account
Operating Surplus and Mixed Income

Allocation of Primary Income Account
Balance of Primary Incomes
National Income

Secondary Distribution of Income Account
Disposable Income
National Disposable Income

Use of Disposable Income Account
Saving

Capital Account
Net lending/Net Borrowing

Financial Account
Net Lending/Net Borrowing
What are Quarterly National Accounts?

- **System** of Quarterly **Time series**
- **Integrated** and **coordinated** through a consistent **Accounting Framework**
- Provided on a **timely basis**
  - Adopt the same principles, definitions and structure as the annual national accounts In principle cover the entire sequence of accounts and balance sheets in the 1993 SNA
  - usually less complete than annuals because of data availability, time, and resource constraints
Basic
- At current and constant prices:
  - GDP
  - Expenditures on GDP
  - Output, intermediate consumption, and value added by groups of industries
- At current prices:
  - National income
  - Saving
QNA compilation involves:

- establishing a set of quarterly national accounts for the period for which annual accounts are available (construction of historical series)
- updating the set of QNA – deriving estimates for the most current periods where no annual data are available
**Scope of QNA**

- **Advanced**
  - Full sequence of institutional sector accounts
  - (Financial) balance sheets

  Seasonally adjusted data in addition to the original data very valuable

- **Timeliness:**
  - SDDS requirement: Available within three months after reference quarter
Role of Quarterly National Accounts

QNA Used for:

- Early identification of changes in trends
- Time-series analysis
- Timely implementation of economic policies
- Better forecasts, including early estimates of annual accounts
- Framework for business cycle analysis
- Econometric modeling, including studies of seasonal patterns
- Accounting under high inflation
available later than various indicator series

but:

– follow the integrated framework structure (allows consistency checks)
– comprehensive GDP and other economy-wide aggregates
– discrete data can be linked to form proper time series (cumulative data and year-to-year changes cannot)

but more timely than annual estimates
Definition: Continuous measurement of the **same concept** over discrete consecutive periods of **time**

*Which in addition facilitates:*

- analysis of the *development over time* in a flexible manner
- identification of underlying trend and *turning points*
- allows *different periods* to be compared

note need for 3-4 years of data (minimum) for seasonal analysis
break down a series into its components:

- seasonal
- trend cycle
- irregular

should a statistics office produce seasonally adjusted estimates?

- country practices differ
Role of Quarterly National Accounts
Monitoring Business Cycles---Quarterly versus Annual Data
Annual data mask short term economic developments

<table>
<thead>
<tr>
<th>Year</th>
<th>Quarterly GDP</th>
<th>Annual GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>1300</td>
<td>5200</td>
</tr>
<tr>
<td>1991</td>
<td>1350</td>
<td>5400</td>
</tr>
<tr>
<td>1992</td>
<td>1400</td>
<td>5600</td>
</tr>
<tr>
<td>1993</td>
<td>1450</td>
<td>5800</td>
</tr>
<tr>
<td>1994</td>
<td>1500</td>
<td>6000</td>
</tr>
</tbody>
</table>

quarterly GDP (left hand scale)  annual GDP (right hand scale)
annuals and quarterlies

sum of the quarterlies should be equal to the annual (benchmarking)
discrepancies arise:

- independent (collection of) quarterly and annual data
  - quarterly data based on (smaller) sample surveys using simplified questionnaires
  - annual data based on censuses/larger sample surveys using more comprehensive questionnaires (and audited business accounts)
  - periodic collection of more detailed, more comprehensive data
more on discrepancies..

- more, and more detailed, information available annually
- may use reconciliation tools (product flow, supply and use tables)
- quarterly estimates based on simplified methods, for example:
  - fixed input-output coefficients
  - interpolation of annuals
  - trend extrapolation
  - “guesstimates”
discrepancies can be removed by:

- benchmarking the quarterly data to the annuals so that
- quarterly and annual times series for the same phenomena are consistent
- accuracy and reliability of the quarterly data are increased
- quarterly data can be used to forecast annual data (note the importance of revision studies)

and note:

- in some countries with integrated systems, the annual may be derived as the sum of the quarterlies – requires very reliable, timely, and comprehensive quarterly data (not common)
“quarterization” of annual estimates for back series
extrapolation for forward series
various techniques available
relationship between quarterlies and annuals

- separate compilation systems
- countries with a comprehensive annual compilation system
- or
- integrated system
- choice depends on circumstances
- benchmarking is an integral part of QNA compilation
annual accounts:
- preliminary and revised
- more reliable, detailed, comprehensive

quarterly estimates:
- more timely, less reliable, less comprehensive
- provide more up-to-date information about the state of the economy (need for some kind of a “minimum standard”)
that is, nominal or volume terms or both?

decisions will be based on user needs, data sources, resources…
need for revisions

- allows incorporation of new and more accurate information
- improve accuracy of estimates without a break in the time series
- transparency:
  - revision schedule
  - documentation
  - educating users
- periodic review of data sources
- and note usefulness of revision studies in improving estimation
the system of national accounts is a system of concepts, definitions, classifications, and accounting rules

is the framework for economic statistics

GDP is an important part, but there is a lot more

three approaches to measuring GDP

annual and quarterly estimates

nominal and volume estimates