Supply-Use Tables
Sessions 2.1 & 2.2: an overview

by
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Introduction

- Who am I?
  - “Keshla” (old man), with very poor eyesight
  - Familiar with small economies
  - The sessions will reflect this experience
- Who are you?
  - Key players in your national accounts teams
  - Probably know more about SUTs than I do
  - Maybe training others on the job
This training material may be useful in your workplace
- Thank you for completing the questionnaire
Objectives of the module

- After this module, participants should have a good understanding of:
  - The role of an SUT in national accounts.
  - What an SUT looks like and how to compile one.
  - The main data sources needed.
  - Some specific issues
  - What is involved in balancing an SUT

Plan for the module

- Monday afternoon
  - Why compile an SUT?
  - Structure and classifications
  - Major data sources
  - Compilation process
  - Procedures using Excel

- Tuesday morning
  - Specific compilation issues

- Tuesday afternoon & Wednesday morning
  - Balancing workshop
SUT Overview (1)

Why compile an SUT?

SUTs are used in...

- Economic analysis
- National accounts:
  - For establishing a “benchmark” level for GDP and its main components, or
  - For quality assurance, or
  - At the heart of a fully integrated system

Procedures for compiling SUTs depend on the national accounting set-up in each country
Why benchmark GDP?

- Over time, most estimates of GDP will go off track
  - because we use indicators that do not cover the whole economy completely
  - and we make many assumptions that may not be valid for long
- Current price estimates of GDP are often especially poor, measured from the production side
- A Supply Use Table (SUT) is the best available tool
  - taking account of all available data
  - integrating all three measures of GDP in one framework

Quality assurance

- Balancing an SUT may call into question the accuracy of the available data
- To achieve a balance, adjustments have to be made to GDP components
- How can these adjustments be incorporated into the regular system of estimation?
At the heart of the system

- Several countries have fully integrated systems with a timely annual (or even quarterly) SUT (extrapolated) at its heart.
- They use it to eliminate statistical discrepancies between the three measures of GDP.
- A simplified version of this approach may help to improve the estimates of GDP and its components and to identify serious anomalies.

How are SUTs used in your national accounts?

Discussion please
SUT Overview (2)

Structure & classifications

SNA context

The UN System of National Accounts: flows

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<thead>
<tr>
<th>Supply</th>
<th>Demand</th>
<th>Income</th>
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<td>Output</td>
<td>Intermediate consumption</td>
<td>Final consumption</td>
<td>Capital formation</td>
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<tr>
<td>Imports</td>
<td>Exports</td>
<td>Net income paid to RoW</td>
<td>Net lending to RoW</td>
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Producers (H/hlds & Govt) | Consumers | Investors | Rest of the world

- Output
- Intermediate consumption
- Final consumption
- Capital formation
- Imports
- Exports
- Net income paid to RoW
- Net lending to RoW
### The SUPPLY USE TABLE and its parts

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<th>SUPPLY USE TABLE</th>
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Three quadrants, five parts

- **Part A**: Production account (by activity)
  - Total output (TO), intermediate consumption (IC), gross value added (GVA)
- **Part B**: Commodity flow accounts (by product)
- **Part C**: Intermediate consumption matrix
- **Part D**: Make matrix
- **Part E**: Generation of income account
**Part B: Supply side**

- Imports of goods (cif) and services
  - Negative cif/fob adjustment in transport & insurance rows
- Total output by product at basic prices
  - Formal, informal, non-market
- Margins by product (zero total)
  - Negative adjustments in the Wholesale & Retail Trade rows
- Taxes & subsidies on products
  - Includes “non-deductible” VAT (special topic)

**Part B: Demand side**

- Intermediate demand
  - At purchasers prices (excluding deductible VAT)
- Household final consumption expenditure
- Government & NPISH final consumption expenditure
- Capital formation
- Exports of goods (fob) and services, plus:
  - Travel credits by product (this is a tourism satellite account integrated in the SUT)
Classifications for SUT purposes

- **Activities:**
  - ISIC Rev.4 – but at what level?
    - For publication, letters (plus some extras) may be enough
  - Key activities and activity groups
  - Split market and non-market?

- **Products:**
  - SNA says CPC, but (at any given level)…
    - too detailed in places, not detailed enough in others, and
    - does not readily distinguish end-use.

Product classification

- I favour a tailor-made, structured national Classification of Products by Activity (CPA)
  - defined in terms of ISIC and CPC codes.
- This simplifies product-activity relationship.
- Given the classification of activities (above), a further split into products (by end-use where possible) can be added.
- Special rows are needed for travel credits/debits
How relevant are your activity & product classifications?

Discussion please

SUT Overview (3)

Major data sources
Main data requirements

Classified by product (and/or activity):
- Imports and exports of goods by product
  - plus all import duties & VAT levied on these goods
- Trade in services
- Household final consumption expenditure
- Government expenditure and tax revenues by product
- Agricultural production
- Total turnover of other non-financial producers
- Income & expenditure of financial corporations
- Trade margin rates
- Input-output ratios

Major data sources

- Administrative sources
  - Customs
  - Central Bank
  - Government accounts
  - Tax & social security authorities
  - Sector ministries
- Survey sources
  - National household surveys
  - Agricultural surveys
  - Enterprise surveys
  - Informal sector surveys
- Existing national accounts data
How comprehensive are your data sources? How do you fill the gaps?

Discussion please

SUT Overview (4)

The compilation process
What are the steps?

- May depend on situation or previous history
  - Preliminary work
    - Initiate project; organise resources
    - Review classifications; agree national CPA with clear links to ISIC Rev.4 at some level
    - Set up or improve SUT system (in Excel?)
  - Data assembly
    - Obtain the data
    - Set up or revise bridge tables for each dataset
    - Transform the data using the bridge tables
    - Insert the data into the framework
    - Identify gaps and fill them where possible
  - Balancing…

SUT system design

- Several possible designs
- Special software exists (ERETES)
- I use two main linked Excel workbooks:
  - CF for commodity flow balances
    - Eight data worksheets & a “balance” sheet
    - Full product detail (with summaries) in rows
  - PA for production accounts by activity (matrices)
    - Sheets with activities in columns
    - Less detailed product groups in rows
    - In currency and in percentage shares
- Other workbooks for
  - Classifications and bridge tables
  - Data assembly
  - Calculations as necessary
What software do you use for national accounting?

Discussion please

SUT Overview (5)

Procedures in Excel
Classification & bridge table files

- Master list of CPA codes & descriptive labels
  - For easy use in Excel, codes should not start with 0
- Tables showing the relationship with CPC/ISIC
- Bridge tables between source data items & CPA.
  - Not a trivial exercise
  - Requires very good knowledge of the classifications
  - Best done by more than one team and compared
- UNSD Classifications Registry useful for all this

Data assembly

- Bridge tables should be “many to one”: one or more source code to a unique CPA code
  - Or, if not, the source codes should be split and likely proportions assigned…
- Given a data file with columns of source codes and values, the corresponding CPA code can be retrieved from the bridge table in a new column using VLOOKUP
- In a sheet with all CPA codes in a column, the corresponding value can be inserted using SUMIF
Commodity flow balances

- For balancing step number one (SUT Table B)
- Workbook columns and sheets:
  - Imports of goods and services
  - Total output (by product)
  - Margins
  - Taxes
  - BALANCE
  - Intermediate demand (by product only)
  - Government & capital expenditure
  - Household final consumption expenditure
  - Exports of goods and services
  - Labels
- Products & subtotals in rows

CF worksheets

- Each worksheet has the following columns…
  - Total (after adjustment)
  - Adjustment (entered when balancing)
  - Total (before adjustment)
  - One for each data source…
  - Extra columns (as required) for calculation, etc.
- …and detailed product categories in rows
- Balancing step number one:
  - Main gap: intermediate demand
Detailed production accounts

- For balancing step number two
- Workbook of IC matrices and source data
  - Total output by activity (linked from SUT file)
  - Intermediate demand by product (linked from SUT file)
  - IC matrix total
  - IC matrix (survey source)
  - IC matrix (other sources)
  - IC matrix (adjustments)
  - Source data
  - Others as needed for calculation, etc.

How are SUTs compiled in your country?

Experiences please