Regional Course on Integrated Economic Statistics to Support 2008 SNA Implementation

Basic principles for supply and use tables

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Lecture Outline

1. Introduction
2. Simplified supply and use tables
3. Valuation of transactions
4. Use tables at basic prices
5. Three measures of GDP

Lecture Outline (cont.)

6. **Other issues**

- Treatment of transport margins
- Value added taxes
- Treatment of imports
- Commodity flow technique

Introduction

* SUT can be used as a compilation tool because the overall framework facilitates:
  * data checking/reconciliation.
  * gap filling.
* A number of countries treat SUT as central to their compilation process, not just as an irregular add-on needed to derive input-output tables.

Introduction

A Simplified Supply Table

Supplies		Industries	Rest of the World	Total
		(1)	(2)	(3)
Products	(1)	Output by product and industry	Imports by products	Total supply by product
Total	(2)	Total output by industry	Total imports	Total supply

Introduction

A Simplified Use Table

Uses		Industries	Rest of the World	Final Consumption	Gross Capital Formation	Total
		(1)	(2)	(3)	(4)	(5)
Products	(1)	Intermediate consumption by product and by industry	Exports by product	Final consumption expenditure by product	Gross capital formation by product	Total use by product
Components of value added	(2)	Value added by component and by industry				
Total	(3)	Total inputs by industry				

Introduction

* A detailed basis for analyzing industries and products in the SNA through integration and breakdown of:
  * The goods and services account
  * The production account
  * The generation of income account

Introduction

Two identities hold:

* The identity by industry
  * Output by industry = input by industry
* The identity by product
  * Total supply by product = total use by product

Three Measures of GDP

* The Goods and Services Account shows:
  * GDP(P) = industry value added plus net taxes on products (VAT, import duties)
  * GDP(E) = sum of expenditure items

* Third measure, GDP(I), comprises the components of value added in the income accounts = compensation of employees + operating surplus + net taxes on production

Valuation of Transactions

* Basic concepts and interrelationships

  * Basic prices
  * Producers' prices
  * Purchasers' prices

Valuation of Transactions

- Valuation of product flows
  - Output
  - Use of goods and services
  - Exports and imports
  - Trade and transport margins
  - Taxes and subsidies

Valuation of Transactions

Equality of supply and use

- Supply at basic prices

Plus

- Taxes less subsidies on products (Including non-deductible VAT)

Plus

- Trade and transport margins

Equals

- Supply at purchasers' prices

Equals

- Use at purchasers' prices

Valuation of Transactions

- Transition.....
- Supply table: from basic prices to purchasers' prices
- Use table: from purchasers' prices to basic prices

Example 1

A simple numerical example:

Farmer produces coffee beans	1,000
Farmer uses imported chemicals	600
Manufacturer roasts coffee beans	1,800
Uses coffee beans	1,000

Value added for farmer and manufacturer?

Retail industry

Retailer sells roasted coffee	1,600
Sales tax on sales to household	100
Purchases for resale	1,300

Total output for retailer?

Retail margin ?

Intermediate consumption	0

Value added for retailer?

Final Use and GDP

HFCE of roasted coffee	1,600
Exports of roasted coffee	500

Total Final use?

GDP E?

How does it compare with GDP P?

Simplified Supply and Use Table

* Refer to Handout 1, showing the Goods and Services account and the Production account for these transactions.

Simplified Supply and Use Table

* Refer to Handout 2, showing the Supply Table.

Simplified Supply and Use Table

* Refer to Handout 3, showing the Use Table at purchasers' prices.

Primary Income

	Farmer	Manuf.	Retailer	Total
Compensation of employees	**275**	**625**	**130**	**1,030**
Gross operating surplus	**100**	**150**	**60**	**310**
Other net taxes on production	**25**	**25**	**10**	**60**
Value added	***400***	***800***	***200***	***1,400***

Use Table and income

* Intermediate consumption
  - = Purchases
  - - Change in inventories (materials)

* Value added
  - = Output
  - - Intermediate consumption
* Operating surplus
  - = Value added
  - - Compensation of employees
  - - Taxes less subsidies on production
  - - Consumption of fixed capital

Market and non-market output

* Market output
  - = Sales
  - + Change in inventories (finished goods and WIP)

* Non-market output (= Cost of production)

  - = Intermediate consumption
  - + Compensation of employees
  - + Other Taxes less subsidies on production
  - + Consumption of fixed capital

Example 2

- More complex economy comprising mining, manufacturing, public administration, and wholesale/retail trade;
- Introduction of inventories.

Mining

1. **Mining**

Sales of gold	370
Sales of gas	250
Purchases of gas	40
Purchase of electricity	2
Compensation of employees	250
Payroll tax	3
Consumption of fixed capital	145

Inventories:	Beginning	End
Finished goods (gold)	35	44
Finished goods (gas)	25	15
Fuel (gas)	24	27

Manufacturing

* **2. Manufacturing**
  * Sales of motor vehicles 990
  * (of which Sales tax) 100
  * Sales of electricity 272
  * Purchase of imported materials 230
  * Purchase of electricity 100
  * Purchase of gas 80
  * Purchase of statistical publication 10
  * Compensation of employees 470
  * Payroll tax 5
  * Consumption of fixed capital 70

Inventories:	Beginning	End
Finished goods (motor vehicles)	60	70
Materials	53	66
gas	10	8

Public administration

* **3. Public administration (non-market)**
  * Sale of government publications 10
  * Purchase of electricity 60
  * Compensation of employees 193
  * There are no inventories.

Wholesale/retail trade

4. Wholesale/retail trade

Sales of gold	320
Sales of gas	250
Sales of motor vehicles	1,100
Purchases for resale:	
Gold	300
Gas	220
Motor vehicles	1,000
Purchases of electricity	50
Compensation of employees	60
There are no inventories	

International trade and final use

5. Other data

Exports of:	
Gas	130
Gold	390
Total	520
Imports of:	
Motor vehicles	240
Materials	230
Total	470

b. Household consumption

gas	30
Electricity	60
Motor vehicles	800

c. Fixed capital formation

Motor vehicles	530

Derivation of Supply Table at basic/purchaser's prices

* Refer to Handout 4, showing the Supply Table for these transactions.

Derivation of Use Table at purchaser's prices

* Refer to Handout 5, showing the Use Table for these transactions.

Derivation of Supply Table at basic/purchaser's prices

* Refer to Handout 6, showing the margins table for these transactions.

Derivation of Supply Table at basic/purchaser's prices

* Refer to Handout 7, showing the product taxes table for these transactions.

Derivation of Supply Table at basic/purchaser's prices

* Refer to Handout 8, showing the Use Table in basic prices for these transactions.

Deriving GDP from SUT presentation

* **1. Production approach**

Sum of value added and taxes less subsidies on products

* **Value added:**
  * **Mining = 580**
  * **Manufacture = 763**
  * **Public admin = 193**
  * **Trade = 100**
  * **Sales tax: = 100**
  * **=> GDP = 1,736**

Deriving GDP from SUT presentation

* 2. **Expenditure approach**

* Consumption - household		890
* Consumption - government		243
* Gross fixed capital formation		530
* Change in inventories		23
* Exports of goods and services		520
* less Imports of G & S		470
* => GDP	=	1,736

Deriving GDP from SUT presentation

* **3. Income approach**

* Compensation of employees		973
* Taxes less subsidies on production		108
* Consumption of fixed capital		215
* Operating surplus		440
* => GDP	=	1,736

Deriving GDP from SUT presentation

The three approaches are identical, when complete information is available.

- Supply and use tables are a powerful tool for compilation of GDP and reconciliation of different estimates of GDP.
- The broad supply-use (or commodity flow) approach can be used to undertake studies of particularly important commodities.