



Department of Census and Statistics

Training Division

Training Module Description

Module: Supply and Use Tables

Version: 1.0

Duration: 05 days

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Supply and Use Tables

1.0 Module Description

The 1993 System of National Accounts (SNA) requires countries to compile annual supply and use tables (SU-tables) as it forms an integrated part of the 1993 SNA. According to the 1993 SNA, the annual estimates of gross value added and its components, as well as output, intermediate consumption expenditure, final consumption expenditure and gross domestic product (GDP) estimates should all have their origin in the annual SU-tables. The concept of supply and use tables has been introduced in the European System of Accounts in 1995 (ESA1995). Since then, many countries including Sri Lanka have attempted to compile supply, use and input – output tables for their economies specially due to the advantage of integrating those tables to the System of National Accounting. Compilation of supply, use and input – output tables require analytical and statistical conception regarding each element of the framework. The main purpose of this module is to provide participants with the comprehensive knowledge regarding the basic concepts and compilation of the supply and use tables.

1.1 Objectives of the Module are;

- 1.1.1 To provide an introduction to the input – output framework.
- 1.1.2 Discuss the process of compiling supply, use and input – output tables.
- 1.1.3 Understand the basic principles and concepts of constructing input output framework.
- 1.1.4 Identify the issues and limitations in compiling the supply, use and input – output tables.
- 1.1.5 Gain knowledge of the advantages and the role of supply and use tables as a part of the system of national accounting.
- 1.1.6 Learn the real world examples of compiling input – output framework in countries over the world.
- 1.1.7 Gain practical insights in compiling supply and use tables.

1.2 Target Participants

Statistical officers of the Department of Census and Statistics

1.3 Brief Module Contents (Syllabus)

- 1. Introduction
 - 1.1 Background
 - 1.2 Input Output framework of the European System of Accounts
 - 1.2.1 The Basic Structure

- 1.2.2 Benefit of supply and use tables
- 1.2.3 Classification of industries and products
- 1.3 Outline of the supply and use system
 - 1.3.1 Supply Table
 - 1.3.2 Use Table
 - 1.3.3 Supply and use framework
- 1.4 Outline of the symmetric input – output tables
- 1.5 Requirements of the ESA 1995 for the input – output framework data
- 1.6 Exercises

- 2. Compilation Principles and Methods
 - 2.1 Overview of the compilation procedure of supply and use tables.
 - 2.2 Layout of national input – output framework
 - 2.3 National Database.

- 3. Supply and Use Tables as an Integral Part of the Compilation of National Accounts
 - a. Compilation of National Accounts
 - b. The approaches of calculating GDP
 - i. Production Approach
 - ii. Income Approach
 - iii. Expenditure Approach
 - c. Data sources for the three approaches
 - d. Relationship between supply and use tables and national accounts aggregates
 - e. Classification of products and industries in empirical tables
 - f. Balancing supply and use of products
 - g. Methodological advantages of supply and use tables as an integral part of the compilation of national accounts.

- 4. The Supply Table
 - a. The important matrices in the supply table
 - b. Supply table at basic prices including a transformation into purchasers' prices
 - c. Compilation of the supply table
 - d. Trade margins
 - e. Transport margins
 - f. Aggregation of the supply table
 - g. Complete process of the compilation of supply and use tables.

- 5. The Use Table
 - a. Introduction
 - b. Use table at purchaser's price
 - c. Important parts of a use table
 - d. Disaggregation of use table
 - e. Compilation of the use table

- f. Procedure of the compilation of use tables
 - g. Database for commodity flow method
 - h. Institutional sectors industries and homogenous production units
6. The Valuation Matrices
- a. Introduction
 - b. Valuation concept in the ESA 1995
 - c. The relationship between the different types of prices
 - d. Valuation matrices and their role in the compilation of supply – use framework
 - e. The valuation matrices in the supply and use framework.
 - i. Supply side valuation matrices
 - ii. Use side valuation matrices
 - f. Trade Margins
 - g. Transport Margins
 - h. Taxes and subsidies on products
7. Import Matrices
- a. Introduction
 - b. Compilation of import matrices
 - c. Imports in the supply and use framework
 - d. Use table for imports
 - e. Compilation of use table for imports
 - f. Specific issues
 - g. Balancing supply and use
 - h. Basic identities
 - i. An efficient way to organize balancing a supply and use system: a step by step procedure
8. Balancing Supply and Use
- a. Supply and use tables and link with the institutional sector accounts
 - b. Balancing the supply and use system
 - c. Numerical example
 - d. Balancing procedures
 - i. Automatic balancing
 - ii. Manual balancing
 - iii. Final balancing
 - e. EDP use in manual balancing
- 9 & 10 Applications
- 9.1 The construction of supply and Use tables in Scottish Government
 - 9.2 Introduction to input – output tables and its' application
 - 9.3 Compilation of supply and use tables in Sri Lanka

f. Method of delivery (lecture/discussion/brainstorming session/activity etc)

The method of delivery of the module will be lectures, discussions, and individual exercises and laboratory sessions.

2.0 Session 1 (Day 1: 0900 – 1200hrs) – Introduction

2.1 Session Description

The session is focused on learning the evolution of European System of Accounts (ESA, 1995). This is also focused on basic concepts and tables in an input – output framework, advantages and specific requirements of the ESA 1995 data in compiling supply, use and input-output tables. The relevant numerical and empirical examples are discussed in order to achieve those objectives.

2.2 Session Learning Outcomes

By the end of this session participants will be able to;

- 2.2.1 Learn the background of ESA 1995.
- 2.2.2 Understand the overall structure of Input – Output Framework.
- 2.2.3 Learn the basic structures of supply, use and input – output tables.
- 2.2.4 Understand the advantages of using Input – Output framework.
- 2.2.5 Gain knowledge of the basic requirements of ESA 1995 for the input – output framework data.

2.3 Brief outline of the session

- 1. Introduction
- 2. Input – Output framework of the European System of Accounts (ESA 1995)
 - 2.1 The basic structure
 - 2.2 Benefits of supply and use tables
 - 2.3 Classification of industries and products
- 3. Outline of the supply and use system
 - 3.1 Supply Table
 - 3.2 Use Table
 - 3.3 Supply and use framework
- 4. Outline of the symmetric input – output tables
- 5. Requirements of the ESA 1995 for the input- output framework data
- 6. Exercises

3.0 Session 2 (Day 1: 1300 – 1600hrs)

3.1 Session Description

The input output framework should comply with all other accounts of the national accounts system, and the supply, use and input – output tables are all interrelated. In such way, compilation of the input – output framework dataset of the ESA 1995 is a complex process and hence this session is allocated to provide participants a complete comprehension on the principles and methods required to construct supply, use and input – output tables. The concepts are discussed using relevant examples.

3.2 Session Learning Outcomes

By the end of this session participants will be able to;

- 3.2.1 Understand the overview of the compilation procedure of supply and use table.
- 3.2.2 Discuss and learn the layout of the national input – output framework.
- 3.2.3 Learn the database requirements and their sources which needed before dealing with the construction of input – output framework

3.3 Brief outline of the session

1. Overview of the compilation procedure of supply and use tables.
2. Layout of national input – output framework
3. National Database

4.0 Session 3 (Day 2: 0900 – 1200hrs)

4.1 Session Description

Despite the advantages of input - output framework, it is essential to integrate the framework into the system of national accounts. It is essential for input – output framework to be complied with all other accounts of national accounts. This session focuses on discussing the basic elements and sources used to compile the national accounts. Further it highlights the basic approaches of calculating GDP and how supply and use tables are used to reconcile the GDP calculations under the three approaches.

4.2 Session Learning Outcomes

By the end of this session participants will be able to;

- 4.2.1 Learn the basic process of the compilation of national accounts.
- 4.2.2 Study the three main approaches used calculate GDP
- 4.2.3 Understand the relationship between supply and use tables and national accounts

4.3 Brief outline of the session

1. Compilation of national accounts
2. The approaches of calculating GDP
 - 2.1 Production Approach
 - 2.2 Income Approach
 - 2.3 Expenditure Approach
3. Data sources for the three approaches
4. Relationship between supply and use tables and national accounts aggregates
5. Classification of products and industries in empirical tables
6. Balancing supply and use of products
7. Methodological advantages of supply and use tables as an integral part of the compilation of national accounts

5.0 Session 4 (Day 2: 1300 – 1600hrs)

5.1 Session Description

The first table under input – output framework is the supply table. A supply table shows the supply of goods and services by type of product of an economy for a given period of time. In this session, the compilation of the supply table will be discussed in detail.

5.2 Session Learning Outcomes

By the end of this session participants will be able to;

- 5.2.1 Learn the three important matrices of supply table.
- 5.2.2 Understand the process of compiling a supply table.
- 5.2.3 Get to know the basic data required to construct the supply table.

5.3 Brief outline of the session

1. The important matrices in the supply table.
2. Supply table at basic prices including a transformation into purchasers' prices
3. Compilation of the supply table.
4. Trade margins
5. Transport margins
6. Aggregation of the supply table
7. Complete process of the compilation of supply and use tables

6.0 Session 5 (Day 3: 0900 – 1200hrs)

6.1 Session Description

The second type of table, Use table in the input – output framework shows how the goods and services have been used for intermediate consumption by industry, final consumption and gross capital formation or exports. Use table together with supply table forms the basis for constructing input – output tables. There certain factors and principles that have to be complied with compiling the use table. The main objective of the session is to discuss in detail the concepts, principles and other aspects of a use table.

6.2 Session Learning Outcomes

By the end of this session participants will be able to;

- 6.2.1 Have an understanding of the process of generating a supply table
- 6.2.2 Differentiate between purchaser's price and basic price.
- 6.2.3 Gain knowledge regarding the important elements of a use table
- 6.2.4 Learn how different items should be treated in the compilation process
- 6.2.5 Learn the nature of data required

6.3 Brief outline of the session

1. Introduction
2. Use table at purchaser's price
3. Important parts of a use table
4. Disaggregation of Use Tables
5. Compilation of the use table
6. Procedure of the compilation of use tables
7. Database for commodity flow method
8. Institutional sectors industries and homogenous production units

7.0 Session 6 (Day 3: 1300 – 1600hrs)

7.1 Session Description

In the supply and use system, the valuation concepts constitute an important element. This refers to the valuation methods we use in dealing with the supply and use systems. This session is based on the different valuation concepts, valuation matrices and the compilation of valuation matrices. Relevant numerical examples will be discussed to understand the concepts clearly.

7.2 Session Learning Outcomes

By the end of this session participants will be able to;

- 7.2.1 Gain knowledge on different valuation concepts
- 7.2.2 Relationship between different types of prices
- 7.2.3 Understand the role of valuation matrices in the compilation of supply – use framework
- 7.2.4 Learn the process of compiling different valuation matrices

7.3 Brief outline of the session

1. Introduction
2. Valuation Concepts in the ESA 1995
3. The relationship between the different types of prices
4. Valuation matrices and their role in the compilation of supply – use framework
5. The valuation matrices in the supply and use framework
 - 5.1 Supply side valuation matrices
 - 5.2 Use side valuation matrices
6. Trade Margins
7. Transport Margins
8. Taxes and subsidies on products

8.0 Session 7 (Day 4: 0900 – 1200hrs)

8.1 Session Description

The supply of goods and services comprises goods and services that are imported. They have to be dealt with proper consideration by compiling import matrices. Once supply and use tables are constructed supply and use tables should be balanced by using production matrix at basic prices, use table at purchaser's prices, use table of imports at basic prices and valuation matrices. This session has been designed to discuss the import matrix and the process of balancing supply and use.

8.2 Session Learning Outcomes

By the end of this session participants will be able to;

- 8.2.1 Learn the compilation of import matrix
- 8.2.2 Understand issues pertaining to the compilation of import matrix
- 8.2.3 Learn the process of balancing supply and use

8.3 Brief outline of the session

1. Introduction
2. Compilation of import matrices
3. Imports in the supply and use framework
4. Use table for imports
5. Compilation of use table for imports
6. Specific Issues
7. Balancing supply and use
8. Basic Identities
9. An efficient way to organize balancing a supply and use system : a step by step procedure

9.0 Session 8 (Day 4: 1300 – 1600hrs)

9.1 Session Description

Once supply and use tables are constructed supply and use tables should be balanced by using production matrix at basic prices, use table at purchaser's prices, use table of imports at basic prices and valuation matrices. This session is continued from the previous session and has been designed to further elaborate on the process of balancing supply and use using numerical examples.

9.2 Session Learning Outcomes

By the end of this session participants will be able to;

- 9.2.1 Understand how the supply and use tables link with the institutional sector accounts.
- 9.2.2 Learn the assumptions to be made in balancing supply and use
- 9.2.3 Different balancing procedures available.

9.3 Brief outline of the session

1. Supply and use tables and the link with the institutional sector accounts
2. Balancing the supply and use system
3. Numerical example
4. Balancing Procedures
 - 4.1 Automatic balancing
 - 4.2 Manual Balancing
 - 4.3 Final balancing
5. EDP use in manual balancing

10.0 Session 9 & 10 (Day 5: 0900 – 1200hrs and 1300 – 1600hrs)

10.1 Session Description

This session is focused on providing participants with practical aspects of supply and use tables and the basics of input – output analysis. The supply and use tables compiled by the Scottish government are discussed using their input-output methodology guide. A laboratory session will be conducted in this regard. Further the Sri Lankan experience of compiling supply and use tables were also discussed.

10.2 Session Learning Outcomes

By the end of this session participants will be able to;

- 10.2.1 Learn the construction of supply and use tables with data collected
- 10.2.2 Gain knowledge of the compilation of input – output tables
- 10.2.3 Gain understanding of the experiences by different countries in the process of compiling input – output framework.

10.3 Brief Module Contents (Syllabus)

- 10.3.1 The construction of supply and use tables in Scottish government
- 10.3.2 Introduction to Input – output tables and its application
- 10.3.3 Compilation of supply and use tables in Sri Lanka

11.0 Materials for further reading and useful web links

- 11.1 Eurostat Manual of Supply, Use and Input – Output Tables available online
at: epp.eurostat.ec.europa.eu/cache/ITY.../KS-RA-07-013-EN.PDF
- 11.2 National Accounts: A practical Introduction available online
at: unstats.un.org/unsd/publication/SeriesF/seriesF_85.pdf
- 11.3 Compiling the Supply and Use Tables: Sri Lanka Experience available online at:
beta.adb.org/data/icp/reta-6483-activities

12.0 Model MCQ Paper

- 12.1 The answer which is not a characteristic of a supply use (SU) table framework
 - 12.1.1 The SU-tables framework has two tables
 - 12.1.2 The SU tables are industry by product matrices
 - 12.1.3 Both industry and commodity classifications are used
 - 12.1.4 Input – output table is a part of SU table framework

- 12.2 The input – output framework doesn't consist of
- 12.2.1 Supply table
 - 12.2.2 Use table
 - 12.2.3 Trade Margin Matrix
 - 12.2.4 Input – Output Table

Please refer the tables below for question 12.3, 12.4, 12.5, 12.6 and 12.7

The Supply table: Output at basic price

	Industry 1	Industry 2	Imports c.i.f. (Total f.o.b.)	C.i.f./f.o.b. adjustment ^a	Trade and transport margins	Taxes less subsidies on products	Total supply at purchasers' prices
Product 1	100	10	25		10	5	[Type a quote from the
Product 2	0	200	10	-2	-10	10	
C.i.f./f.o.b. adjustment ^a			-2				
Output/Total							

The use table: Uses at purchasers' price

	Industry 1	Industry 2	Export	Final consumption expenditure	Gross capital formation	Total uses at purchasers' prices
Product 1	10	40	30	50	20	
Product 2	30	70	40	68		
Value added	60	100				
Output/Total						

- 12.3 The total uses at purchasers' price for product 1 is,
- 12.3.1 150
 - 12.3.2 100
 - 12.3.3 250
 - 12.3.4 358
- 12.4 The total uses at purchasers' price for product 2 is
- 12.4.1 208
 - 12.4.2 150
 - 12.4.3 210
 - 12.4.4 118
- 12.5 Total output for industry I is,
- 12.5.1 60

- 12.5.2 20
- 12.5.3 100
- 12.5.4 358

- 12.6 Total output for industry 2 is,
 - 12.6.1 210
 - 12.6.2 100
 - 12.6.3 40
 - 12.6.4 70

- 12.7 The GDP value is,
 - 12.7.1 358
 - 12.7.2 208
 - 12.7.3 175
 - 12.7.4 118

- 12.8 The equivalent approaches of calculating GDP are
 - 12.8.1 Production, income and expenditure methods
 - 12.8.2 Input and output approaches
 - 12.8.3 Intermediate and final consumption methods
 - 12.8.4 Basic and purchasers' price methods

- 12.9 The matrix which is not included in the supply table
 - 12.9.1 Production Matrix
 - 12.9.2 Transport Margin
 - 12.9.3 The import matrix
 - 12.9.4 The valuation adjustment matrix

- 12.10 Final consumption expenditure in the use table does not include
 - 12.10.1 Final consumption expenditure by households
 - 12.10.2 NPISH
 - 12.10.3 Final consumption expenditure by government
 - 12.10.4 Imports

- 12.11 Purchasers' price is,
 - 12.11.1 The price the purchaser actually pays for the products including any taxes less subsidies on the products.
 - 12.11.2 The price the purchaser actually pays for the products including any taxes less subsidies on the products and transport charges paid separately by the purchaser to take delivery on time.
 - 12.11.3 The price the purchaser actually pays for the products excluding any taxes less subsidies on the products.

12.11.4 The price the purchaser actually pays for the products including any taxes less subsidies on the products and excluding transport charges paid separately by the purchaser to take delivery on time.

12.12 Which of the following is true with regard to producers' price?

12.12.1 Purchasers' price – Non deductible VAT + Trade and transport margin

12.12.2 Purchasers' price + Non deductible VAT - Trade and transport margin

12.12.3 Purchasers' price + Non deductible VAT + Trade and transport margin

12.12.4 Purchasers' price – Non deductible VAT - Trade and transport margin

12.13 Which of the following is true with regard to producers' price?

12.13.1 Purchasers' price – Non deductible VAT + Trade and transport margin

12.13.2 Producers' price-taxes on products +subsidies on products

12.13.3 Producers' price + taxes on products +subsidies on products

12.13.4 Producers' price - taxes on products - subsidies on products

12.14 Trade Margins;

12.14.1 Trade Sales – Costs of goods purchased for resale-Net changes in trading stocks

12.14.2 Trade Sales + Costs of goods purchased for resale + Net changes in trading stocks

12.14.3 Trade Sales + Costs of goods purchased for resale-Net changes in trading stocks

12.14.4 Trade Sales – Costs of goods purchased for resale + Net changes in trading stocks

Use the following "breakdown of value added" table to answer question 12.15 and 12.16

	Corporations		Households & NPISHs		Government	
	Industry 1	Industry 2	Industry 1	Industry 2	Industry 1	Industry 2
Product 1	5	30	5	8		2
Product 2	15	54	15	12		4
Value added	30	68	30	20		12
Output	50	152	50	40		18

12.15 Total value added by corporations

12.15.1 30

12.15.2 68

12.15.3 98

12.15.4 15

12.16 Total value added by corporations

12.16.1 30

12.16.2 20

12.16.3 50

12.16.4 40

12.17 Balancing of supply and use table comprises

12.17.1 Automatic Balancing

12.17.2 Manual Balancing

12.17.3 Final Balancing

12.17.4 Income Balancing

12.18 The classification of the industries in the supply and use framework is based on,

12.18.1 "Classification of Industries by product"

12.18.2 "General industrial classification of economic activities within the European Communities"

12.18.3 "Classification of products by activity"

12.18.4 "Industry Classification Standard"

12.19 The classification of products is based on,

12.19.1 "Classification of products by activity"

12.19.2 "Classification of Industries by product"

12.19.3 "General industrial classification of economic activities within the European Communities"

12.19.4 "Industry Classification Standard"

12.20 The gross domestic product (GDP) calculated under production, income and expenditure approaches are at,

12.20.1 Market prices

12.20.2 Factor prices

12.20.3 CIF prices

12.20.4 FOB prices

13.0 Model Take-home project (assignment)

Take a country of your choice which has constructed supply and use tables for the economy. Discuss main elements of the tables using figures shown in the constructed tables. For example you should address the methodology they have adopted, main elements of their supply and use tables (with figures) and the calculation of GDP value. Maximum words: 3000

