

Chapter 9

Input-Output Analysis

Exercises

9. 1.

Consider the following Leontief tableau:

	Manufacture	Non- Manufacture	Consumption	Government	Export	Total
Manufacture	18	18	40	14	30	120
Non-Manufacture	20	37	43	7	18	125
Households	56	52	16	9	27	160
Government	6	7	20	22	0	55
Import	20	11	41	3	5	80
Total	120	125	160	55	80	540

Calculate

1. the total final demand vector,
2. the matrix of direct secondary input-output coefficients. Interpret the coefficient a_{12} ,
3. the Leontief matrix,
4. the matrix of complex input-output coefficients. Interpret the second column of this matrix,
5. the matrix of indirect input-output coefficients,
6. the total demand vector for the following total output vector:

$$x = (130 \quad 120)^T,$$

7. the total output for the following final demand vector:

$$y = (90 \quad 70)^T,$$

8. the total output of sector “manufacture” and the final demand of sector non-manufacture for $x_2 = 130$ and $y_1 = 80$,
9. the matrix of direct primary input-output coefficients. Interpret the coefficient \tilde{a}_{31} ,
10. the matrix of complex primary input-output coefficients. Interpret its first column.
11. the amount of primary inputs needed for $y = (90 \quad 70)^T$.

9. 2.

Consider the following input-output table:

	Sector 1	Sector 2	Sector 3	Consumption	Investment	Output
Sector 1	8	5	4	1	2	
Sector 2	0	1	0	9	0	
Sector 3	2	0	2	0	6	
Amortisation	2	2	2			
Wages and salaries	3	1	1			
Profit	5	1	1			
Input						

Compute the following

1. The total output (= input) of each sector.
2. The final demand of each sector
3. The matrix of direct secondary input-output coefficients.
4. The unknown elements of the complex secondary input-output coefficients:

$$\begin{pmatrix} a & 1.01 & 0.91 \\ 0.00 & 1.11 & 0.00 \\ 0.23 & 0.13 & b \end{pmatrix}$$

Interpret the first column of this matrix.

5. The final demand vector for the total output vector $x = (24 \ 8 \ 9)^T$.
6. The total output vector for the final demand vector $y = (4 \ 8 \ 8)^T$.
7. The matrix of direct primary input-output coefficients.
8. The matrix of complex primary input-output coefficients. Interpret the second column.
9. The amount of primary inputs needed for $y = (4 \ 8 \ 4)^T$.

(Last updated: 18.10.2014)