

# Unit 11 - Week 9 - Input-Output Analysis

## Course outline

How does an NPTEL online course work?

Practice Assignment

Week 1 - Introduction

Week 2 - Energy and quality of life, Country energy balance

Week 3 - Energy Economics

Week 4 - Energy Resources

Week 5 - Non-Renewable Resource Economics

Week 6 - Preferences, Utility and Social choices

Week 7 - Public and private goods, Externalities

Week 8 - Energy and Financing

Week 9 - Input-Output Analysis

Lecture 18A: Input Output Analysis - Part 1

Lecture 18B: Input Output Analysis - Part 2

Lecture 19A: Input Output Analysis - Part 3

Lecture 19B: Input Output Analysis - Tutorial

Additional Learning

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Quiz : Assignment 9

Assignment 9 Solutions

Week 10 - Primary Energy Analysis, Net Energy Analysis

Week 11 - Net Energy Analysis (Continued), Energy Policy

Week 12 - Energy policy (continued), Future Energy Systems

Text Transcripts

## Assignment 9

The due date for submitting this assignment has passed.  
As per our records you have not submitted this assignment.

**Due on 2020-04-01, 23:59 IST.**

1) Which of the following models is not suitable for long term energy forecasting? 1 point

- Econometric model  
 Input-output model  
 Optimization model  
 End-use accounting model

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
Input-output model

2) Which amongst the following is not an assumption of Input-output model? 1 point

- Technical coefficients are constant  
 Economies of scale are ignored  
 Each industry considered in the analysis has to transact with every other industry

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
Each industry considered in the analysis has to transact with every other industry

3) Input-output analysis is a short term analysis model 1 point

- True  
 False

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
True

4) Consider a technical coefficient matrix is given as:

$$A = \begin{bmatrix} 0.35 & 0.25 \\ 0.3 & x \end{bmatrix}$$

For what value of x, Leontief's inverse does not exist? Round off to 2 decimal places.

**Hint**

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
(Type: Range) 0.87,0.89

5) Consider a coefficient matrix A for n-sector economy. What does the coefficient A (1,2) indicate? 1 point

- Units of sector 1 purchased by sector 2 for each unit produced by sector 2  
 Units of sector 2 purchased by sector 1 for each unit produced by sector 1  
 Units of sector 1 purchased by sector 2 per unit production of sector 1  
 Units of sector 2 purchased by sector 1 per unit production of total output of all sectors

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
Units of sector 1 purchased by sector 2 for each unit produced by sector 2

6) Technical coefficients may or may not be greater than 1 1 point

- False  
 True

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
False

7) Consider a 2-sector economy.

For 1 unit final output of sector A, it requires 0.2 units from itself and 0.05 units from sector B

For 1 unit final output of sector B, it requires 0.15 units from itself and 0.09 units from sector A.

The Leontief inverse for the given economy is:

- $\begin{bmatrix} 0.2 & 0.09 \\ 0.05 & 0.15 \end{bmatrix}$   
  $\begin{bmatrix} 1.12 & -0.04 \\ -0.11 & 1.3 \end{bmatrix}$   
  $\begin{bmatrix} 1.26 & 0.13 \\ 0.07 & 1.18 \end{bmatrix}$   
  $\begin{bmatrix} 1.26 & 0.06 \\ 0.05 & 1.14 \end{bmatrix}$

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
 $\begin{bmatrix} 1.26 & 0.13 \\ 0.07 & 1.18 \end{bmatrix}$

8) Consider a 2-sector economy.

For 1 unit of final output of sector A, it requires 0.2 units from itself and 0.05 units from sector B

For 1 unit of output of sector B, it requires 0.15 units from itself and 0.09 units from sector A

If the final demands for sector A and B are 10 units and 15 units respectively, total outputs of sector A & B are respectively:

- 10.25, 15.56  
 14.55, 18.40  
 12, 18  
 13.84, 16.58

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
14.55, 18.40

9) Increase in energy efficiency of industries shall change the technical coefficients. 1 point

- True  
 False

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
True

10) For a Leontief inverse L for an n-sector economy, value of L (1,1) is 1.13.

Select the correct statement(s).

- For an increase in output of sector 1 by 1 unit, final demand of sector 1 increases by 13%  
 For an increase in final demand of sector 1 by 1 unit, output of sector 1 increases by 13%  
 For an increase in final demand by 2 units, output of sector 1 increases by 2.13 units  
 For an increase in final demand by 2 units, output of sector 1 increases by 2.26 units

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
For an increase in final demand by 2 units, output of sector 1 increases by 2.26 units

11) To provide a demand of 20 tonnes of steel, 2 tonnes of steel and 1.5 tonnes of coal is required.

To provide a demand of 30 tonnes of coal, 5 tonnes of steel and 3 tonnes of coal is required.

The A matrix (technology matrix) for the given 2-sector economy is:

- $\begin{bmatrix} 0.074 & 0.145 \\ 0.055 & 0.087 \end{bmatrix}$   
  $\begin{bmatrix} 0.055 & 0.087 \\ 0.145 & 0.074 \end{bmatrix}$   
  $\begin{bmatrix} 0.074 & 0.183 \\ 0.043 & 0.087 \end{bmatrix}$   
  $\begin{bmatrix} 0.1 & 0.25 \\ 0.05 & 0.1 \end{bmatrix}$

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
 $\begin{bmatrix} 0.074 & 0.145 \\ 0.055 & 0.087 \end{bmatrix}$

12) To provide a demand of 20 tonnes of steel, 2 tonnes of steel and 1.5 tonnes of coal is required.

To provide a demand of 30 tonnes of coal, 5 tonnes of steel and 3 tonnes of coal is required.

If demand of steel increases to 25 tonnes, and that of coal decreases to 28 tonnes, outputs of steel & coal, in tonnes respectively are:

- 32, 34.5  
 27, 32.5  
 31, 29.5  
 32.1, 32.6

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
32.1, 32.6